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UKRAINIAN OFFICIAL URGES RESOURCE CONSERVATION

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 80 p 5

[Article by V. N. Paramonov, Secretary of the Khar'kovskaya Oblast Committee of the Communist Part of the Ukraine, under rubric "Improving the Economic Mechanism : With Fewer Expenditures"]

[Text] The Tenth Five-Year Plan is coming to an end. The labor collectives in Khar'kovskaya Oblast are refining the plans for economic and social development in 1981, and are preparing the draft versions of the plans for the Eleventh Five-Year Plan. In conformity with the decisions of the October 1980 Plenum of the CPSU Central Committee and the instructions contained in the speech which L. I. Brezhnev gave at the Plenum, the party's oblast committee aims the party organizations and the labor collectives at the acceptance of the counter plans that would surpass the control figures that were subdivided down to the level of the associations and organizations by the superior economic agencies.

When the counter plans are being developed, the basic emphasis is placed on improving the qualitative indicators, among which great importance is given to the economical expenditure of all types of resources.

On the Basis of a Comprehensive System

When the draft versions of the 1981 plans were being developed, broad use was made of the new methods of management which were stipulated by the decisions of the party and government for improving the economic mechanism. An important role was played by the record cards for the associations and enterprises. On their basis, provision was made for the better use of the fixed assets and the labor and material resources. But that was only one of the directions. The party's oblast committee recommends to the party organizations and labor collectives that they proceed from the hypothesis that the greatest success can be achieved only by using a comprehensive set of various measures. Among these measures we include first of all the improvement of norms and norm lists. The norm base of the plan is its very core, which characterizes the level of intensity and effectiveness. Furthermore, the comprehensive set of measures provides for the carrying out of competitive reviews for the best organization of labor and production, the improvement of the technological processes, the application of the progressive types of materials that make it possible to reduce the amount of metal needed in the articles, and to reduce the expenditures of labor and material resources per unit and the overall volume of output.

Advanced enterprises have organized the broad study of progressive methods in economic schools and schools of communist labor and advanced experience and have also organized propaganda with the aid of means of mass information and of seminars and conferences on scientific practice.

It is important to involve inventors and efficiency experts broadly in the resolution of the technical and technological tasks and to create creative brigades which are supposed to engage in the resolution of specific problems. At that stage it is especially important to have assistance on the part of the administration and the party organizations in the formation of the plans for the creative brigades, because, on the basis of the creative plans, in the final analysis, one develops the measures for the counter plans for the labor collectives in 1981 and the draft versions of the plans for raising the technical level and effectiveness of production which are being prepared for the five-year period.

The questions linked with the intensification of economy measures are regularly discussed at sessions of the bureau and the plenums of the oblast, city, and rayon party committees and at meetings of the primary party organizations and workers' meetings.

On the basis of the Khar'kov Center for Scientific-Technical Information and Technology House, we are conducting conferences on scientific practice and special-subject seminars and exhibitions which reveal the basic trends for economizing raw and other materials, fuel, energy, and for assuring their effective use.

The pages of our newspapers regularly discuss the contribution being made by the advanced workers of production, the participants in the movement for efficiency experts and inventors in the economizing of material resources. One has observed in the oblast the broad support of the initiative undertaken by a collective at the tractor plant, which decided to guarantee the additional output of tractors by economizing various types of resources as a result of introducing inventions and efficiency-improvement suggestions. The chemical reagents plants has established a labor treasure-chest for economized resources. It will be "opened up" a week before the 26th CPSU Congress: for the entire week, the collective will operate on economized resources only.

The Serp i Molot Motor-Building Association, for example, regularly reviews the resource-expenditure norms with a view to lowering them. The economists, technologists, and innovative workers are involved in this work. In recognition of assimilation of progressive norms for expenditure, prizes are established and the names of the innovators become known to the entire collective. People have a personal interest in working economically and show a large amount of initiative. As a result, the saving of metal in the association during the current year has exceeded 2,400 tons.

The carrying out of measures to conserve resources has made it possible from the beginning of the five-year plan to obtain at the oblast's enterprises and organizations an economic benefit in an amount that exceeds 320 million rubles.

The results could undoubtedly have been more considerable if the system of comprehensive measures for the conserving of resources had been used purposefully everywhere. That has not yet been achieved at the Svet Shakhtera Plant or the Refrigeration machinery plant. They have failed to create the proper conditions for the broad, planned introduction of advanced experience and efficiency-improvement suggestions and inventions, and that has had an effect upon the overall technical level of production and the quality of output. They also have a high level of expenditure of raw and other materials. Through the efforts of the party organizations, the engineer services, and the NTO [Scientific-Technical Society] and VOIR [All-Union Society of Inventors and Efficiency Experts] organizations, the situation is currently being corrected. Basic attention has been directed toward the search for ways to reduce the amounts of metal and energy required to produce articles, by means of the introduction of progressive scientific and technical developments, new technological processes, and highly productive equipment that also makes it possible to operate according to schemes that yield no waste products and that allow minus tolerances. Steps have been taken to improve the methods of cutting out metal and to eliminate defective output.

As Though It Were Our Daily Bread

Metal is called the bread of industry. The party organizations consider it to be a law of their activities to imbue in the collectives the same attitude to rolled metal that we take to our daily bread.

A genuinely economical attitude toward the use of metal is instilled by the party organizations at the bearing plant and the Soyuzkonditsioner Association. In the annual comprehensive plans for raising the technical level of production, the collective provides for an economizing of all types of metal.

The party committees at the plant and the association constantly monitor the fulfillment of the planned measures, listen to the reports given by the administration, the managers, and the party bureaus of the shops and sections, as well as the foremen, locate any possible bottlenecks promptly, and, with the aid of the public, eliminate those bottlenecks. It is very important for collectives of workers to be involved in the job of mobilizing the reserves. The shops have opened personal economizing accounts, and an effective system of psychological and material incentives has been created and is in operation. This kind of attentive attitude contributes to the development of technical creativity, and, as a result, in the past three quarters of the year these two collectives have economized thousands of tons of rolled metal.

However, there are still many places where this economical attitude toward metal has not developed. The Orgtekhnika and Elektrobritva Plants, the excavator plant and certain others have public economic-analysis bureaus which are not operating at full force; a formalistic attitude is taken toward the consideration and implementation of the recommendations that have been made in the course of reviews and sudden inspections and relaxed expenditure norms are in use. One can still encounter old technology there, as a result of which much of the metal goes onto the scrap heap and no use is made of economical shapes.

One cannot reconcile himself to shortcomings such as these, because if the expenditure of rolled metal in the oblast is reduced by only one percent, it would

be possible to economize as much metal as would be required to produce approximately 2,500 T-150 tractors. The party's oblast committee has told the party organizations at the lagging enterprises that they must correct the situation.

Here is another alarming situation. In the casting shops of a number of machine-building plants in the oblast the metal-use coefficient is 75 percent, and in forge shops, 85 percent. Of course, one can see here the effect of definite miscalculations in the work of improving the norm base, as well as the easing up of demands on the part of the economic personnel, the party organizations, and the party's rayon committees. But it is also necessary to make conclusions that pertain to the ministries and the all-union and republic-level associations. The technology and technological processes are not the most up-to-date everywhere, and they must be remodeled. This kind of action is called for, for example, at the bicycle plant and the Porshen' Plant, which are part of the Ministry of Automotive Industry and the Ministry of Agricultural Machinery.

All of us, working together, will have to do a lot of work to convert the manufacture of massive parts in machine-building from the cutting method to more progressive technological methods -- precision casting, stamping, and extrusion. For every million tons of processed rolled metal, according to our computations, it would be possible here to free 20,000 workers and 15,000 machine tools, and to save tens of thousands of tons of metal.

An important condition for saving metal is the development of progressive designs for new machine tools and machinery. A definite amount of work in this direction is being done by designers at the turbine plant. They are fighting to reduce the amount of metal required to produce their output, and to prolong the service life of the new technology in operation. However, there have also been examples of the opposite nature. According to our computations, every excavator, during its life, "eats up" twice its own weight in spare parts. In such instances the measures called for include heat hardening of parts, and the use of high-strength pig irons, alloyed steels, and lightened bent and hollow shapes.

In order to resolve these problems, we are drawing upon the efforts of our designers, technologists, and various scientific and scientific-research institutions in Khar'kovskaya Oblast. Now it is up to the appropriate ministries and their institutes, particularly Ministry of Ferrous Metallurgy Ukrainian SSR and USSR Ministry of Ferrous Metallurgy which have been called upon to provide machine-building with progressive types of rolled metal.

Work Time Must Be Strictly Accounted For

An important condition for increasing the effectiveness of production is the efficient use of the labor resources of work time.

The practice of work at the advanced enterprises in the oblast indicates that we can obtain higher final results by improving the organization of labor and production, and by reinforcing labor discipline. One of the most important trends in this work is the changeover to collective forms of organizing labor and providing incentives for it.

Guided by the decisions of the party and government concerning the improvement of the economic mechanism, the enterprises in Khar'kovskaya Oblast have created thousands of brigades, the bulk of which are comprehensive and total brigades operating on a single work order.

Beneficial experience has been accumulated at the Zavod imeni Malysheva and Khar'kovskiy Traktornyy Zavod imeni S. Ordzhonikidze associations and in a number of other collectives. As a rule, in these brigades the labor productivity is 10-15 percent higher than with individual piece-rate payment. This makes it possible to use the personnel more productively.

But at the technological equipment plant, the hoisting and transporting equipment plant, and the Kupyanskiy Casting Plant, the brigade form of organization of labor has not yet received its proper development. For purposes of economizing labor resources, the party's rayon and city committees render various kinds of assistance to the collectives that are lagging behind in the introduction of brigade forms of labor; they hold seminars and provide for the exchange of experience in the establishment of norms and the payment of labor.

The party's oblast committee poses the task of improving the material-technical supply of the work sites, and of improving the working and everyday production conditions. An inspection carried out on the initiative of the party's oblast committee ascertained that in a number of rayons -- Volchanskiy, Izyumskiy -- and the oblast center -- in Ordzhonikidzevskiy and Kominternovskiy Rayons -- a considerable number of work absences have been allowed with the authorization of the administration, although frequently that authorization is extremely unsubstantiated. At the same time the work absences are frequently explained by the workers' need to resolve everyday problems: all this results in an annual underproduction valued at hundreds of thousands of rubles.

All these problems were discussed at a conference on scientific practice that was held recently. The conference developed a set of effective measures aimed at improving the organization of labor, improving the psychological climate in the collectives, and increasing the efficiency of production. The reinforcement of labor discipline, the reduction of personnel turnover, and the economizing of labor resources are being promoted by the organization of political and economical training, the development of a network of children's, sport, and cultural-educational institutions, the improvement of the work of transportation, and the further development of housing construction. During the years of the present five-year plan more than 400 shops and sectors were completely mechanized and automated. That made it possible, at the machine-building and metal-processing enterprises alone, to economize the labor of approximately 20,000 persons.

On the basis of the introduction of advanced technology and technological methods and the improvement of the organization of labor, it is planned to improve the quality of output and to increase the amount of output. During this five-year plan, output valued at more than 300 million rubles will be produced in excess of the assignment. The entire increase is, for the most part, covered by the increase in labor productivity.

The struggle waged by the labor collectives for effectiveness and quality during

the Tenth Five-Year Plan yielded definite results. In the course of that struggle it was necessary to change the criteria that had been established for evaluating the work performed by the production collectives. That was no easy process. But it will help us to resolve more successfully the tasks of increasing the effectiveness of production in the new five-year period that is beginning, the basic trends in which will be approved by the 26th CPSU Congress.

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PLANNING AND PLAN IMPLEMENTATION

CENTRAL PLANNING VERSUS EMPLOYEE INITIATIVE EVALUATED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 10, Oct 80 pp 93-99

[Article by Doctor of Economic Sciences Professor S. Dzarasov: "The Organization of Centralized Planning and Economic Initiative"]

[Text] In the diverse work on improving the economic mechanism the problem of combining centralized planning with economic initiative, the creative approach of the working masses to the organization of planning and the fulfillment of the plans appears as the key problem. The decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 calls for a number of measures on strengthening both principles of democratic centralism. Among them the questions of the increase of the scientific soundness of plans and the more complete conformity of the plan assignments to public needs, the transformation of the five-year plan into the main form of planning, the introduction along with the assignments with respect to the main list of stable economic standards of a new system of plan indicators and cost accounting stimulation, the extensive dissemination of the practice of counter-planning and so on hold an important place. The implementation of the outlined measures requires much organizational work, the elaboration of procedural principles which are based on a thorough knowledge of the economy and the theoretical and practical aspects of its development.

In the set of measures on improving the management of the economy the ascertainment of the essential aspects of the long-term factors, which have a decisive influence on the successfulness of the forms of management, is important.

There can be no doubt, for example, about the exceptional importance of the improvement of the system of plan indicators. And all the same it is clearly insufficient to limit ourselves only to this aspect of the matter. Plan indicators are an expression of certain economic relations, concrete aspects of reality, and a change of the former cannot yield the proper impact if the latter have not been changed accordingly.

Moreover, if some indicators or others inadequately ensure the effectiveness of management, the reason, apparently, should be sought not so much in the accounting and statistical sphere of the activity of people as in the socio-economic sphere. The question arises: Why were some indicators good in the past, but subsequently ceased to be so? The reason for this change, in our opinion, lies in the fact that the methods of managing the economy which met the previous conditions ceased to

fit the new conditions. The nonconformity of the indicators to the demands of the times takes the form of a change in real relations.

Thus, the indicator of the gross production for many years did not arouse any reproaches and no one suggested to replace it with the indicator of the net production, although the latter had been known for a long time. This is explained by the fact that the indicator of the gross production was fully in keeping with that period of development when extensive sources of economic development were of primary importance, when the interest of the workers was directed mainly toward the achievement of quantitative results. However, with time it became more and more obvious that the efficiency of production is determined not only by the increase of its volume. With the achievement of a certain level of production the degree of satisfaction of the needs of society as a whole and of each member of it and the labor activeness of the people, which is connected with this, assume decisive importance.

The accomplishment of this task was initially seen in the replacement of the indicator of the gross production of enterprises by the indicator of the sold production. It was believed that this indicator links production more closely with consumption, and therefore creates an interest of the producers in the more complete satisfaction of the needs of society. In fact the indicator of sold production, while having a positive influence on the process of adapting production to the needs, did not solve the posed task. The indicator of sold production was a version of the indicator of gross production with all the shortcomings inherent in it.

The main shortcoming consists in the existence of much double counting. The intensification of production specialization increases the proportion of the transfer value (of means of production) in the total production volume. When evaluating the activity of enterprises according to the indicated indicators the collectives are inadequately interested in reducing the material expenditures. As a result of the increase of material expenditures both the gross and the sold production give a more and more distorted reflection of the actual production volumes achieved. The aspiration of collectives to achieve the volume indicators reflects the retention of the former relations and methods of management, which were aimed at the use of extensive factors of growth.

At present the indicator of the net production, which is free of the transfer value (material expenditures) and reflects more accurately the amount of the newly created product, is being introduced in planning practice for evaluating the activity of enterprises, associations and ministries.

The introduction of the new indicator is making it possible to eliminate the noted shortcomings of the indicators of the gross and sold production and is creating a more objective basis for determining labor productivity at different levels of management.

The method of calculating labor productivity, which existed up to now on the basis of the indicator of the gross production (by dividing the gross production by the number of employees) suffered from a significant shortcoming. The calculation made by us shows how different the dynamics of the growth of labor productivity is depending on whether it is calculated on the basis of the indicators of the gross or the net production.

	By years					
	1965	1970	1975	1976	1977	1978
Gross national product of industry, billions of rubles.	266.2	409.0	558.3	578.4	605.5	633.1
Net production (national income) of industry, billions of rubles	101.1	148.3	191.2	199.7	207.0	216.2
Number of industrial personnel engaged directly in production, thousands. .	27447	31593	34054	34815	35417	36044
Labor productivity (output per worker), rubles, calculated by dividing:						
the gross production by the number of industrial personnel engaged directly in production. . .	9697	12943	16396	16611	17094	17581
the net production by the number of industrial personnel engaged directly in production. . .	3683	4694	5644	5735	5844	6063
Increase of labor productivity, percent, determined by dividing:						
the gross production by the number of industrial personnel engaged directly in production. . .	100	133.5	169.1	171.3	176.3	181.3
the net production by the number of industrial personnel engaged directly in production. . .	100	127.5	153.2	155.7	158.3	163.8
Percent decrease of the indicator of labor productivity with the second method as compared with the first	--	6.0	15.9	15.6	18.0	18.3

The cited table of the growth of labor productivity in industry during 1965-1978 has some inaccuracy, which is connected with the attribution of the gross and the net product of all industrial production only to the number of industrial personnel engaged directly in production. Nevertheless it correctly reflects the different dynamics of labor productivity in the two methods of calculation. The above-noted distorting influence of the existing method appears quite clearly.

It should be anticipated that the more extensive adoption in planning practice of the indicator of the net production will have a favorable influence on the improvement of the methods of management. But it should not be forgotten that the

development of production depends on how the real relations of the producers are formed, how their aspiration to satisfy public interests is supported. The effectiveness of the economic mechanism depends on the attitude of the collective toward the interests of society. With deviations in these attitudes the indicator of the net production may stimulate not an increase of the labor contribution, but the retention of labor-consuming jobs. If all the activity of the collective were measured only by the indicator of the net production, then, for example, specialization might be disadvantageous, since components are excluded when determining the net production. Here the interest in the improvement of quality, which most often leads to an increase of the expenditures of living labor, acquires particular importance.

The need for the improvement of economic relations, particularly the interest and responsibility of collectives for the effective management of the economy, and the system of indicators which reflects them follows from what has been said. The need for the improvement of economic relations is connected with the relations of public ownership, which unites the worker and the means of production. "Thousands and thousands of labor collectives, millions and millions of conscientious Soviet citizens are thinking about the country and its economy, are worried about them," L. I. Brezhnev said at the November (1979) CPSU Central Committee Plenum. "The socialist economic mechanism is called upon to provide the worthy outcome with a spurt of energy and initiative."¹

The labor and social activeness of the workers is an irreplaceable source of economic dynamism. The fulfillment of the assignments of the national economic plans also depends on this. The success of the plan is ensured by how realistically it relies on the interest and the responsibility of the collectives of enterprises for the results of economic activity. It is impossible to solve the problems of improving the economic mechanism without creating an extensive interest of labor collectives in the efficient management of the economy, without increasing their responsibility, initiative and enterprise as the main sources of economic dynamism. Therefore it is necessary to approach the evaluation of the measures on improving the economic mechanism, in our opinion, from the point of view of how much they stimulate the development of the initiative of collectives of workers and the direction of their energy toward the satisfaction of the needs of society.

Such an approach in a certain way also changes some formed notions about the essence of planned development and the forms of its combination with economic initiative. We have in mind the identification of development according to plan (the national economy plan) with the directive setting of assignments and those cases when enterprising activity, which was not stipulated in the directive plan, does not receive the proper support. In our opinion, such phenomena are not in keeping with the specific nature of socialism and the role of the workers as the true masters of production. For it is not by chance that Lenin's formula of democratic centralism is equally aimed both against anarchy and market chaos and against the fettering of local enterprise and initiative. The experience of economic development confirms the need to constantly combat these extremes.

1. L. I. Brezhnev, "Rech' na Plenum Tsentral'nogo Komiteta KPSS 27 noyabrya 1979 goda" [Speech at the CPSU Central Committee Plenum on 27 November 1979], Moscow, Politizdat, 1979, p. 26.

One of them is the granting to enterprises of unlimited independence in economic activity. Such a demand is justly regarded as the unleashing of market chaos, which contradicts the nature of socialism and leads to the undermining of the national nature of socialist society. The arrangement of centralization weakens the democratic principles of management, particularly the economic initiative of collectives in the most rational use of resources with allowance made for the needs of society, in our opinion, is the other extreme.

The impermissibility of extremes and the need to combine both principles of democratic centralism were discussed at the 25th CPSU Congress. The question became a subject of serious attention at the November (1979) CPSU Central Committee Plenum. "We all understand," L. I. Brezhnev said at the plenum, "that a socialist economy is inconceivable without the strengthening of the centralized basis. At the same time in both politics and economics we need democratic centralism, which affords great scope to initiative from below—the initiative of kolkhozes and sovkhozes, enterprises and associations, local organs. This ensues not only from our world outlook, but also from economic necessity. Initiative from below is our reserve for expediting economic development, which cannot be replaced by anything."²

The evaluation of the different aspects of the present economic mechanism should be approached in light of this thesis. This evaluation proceeds from the fact that the economic mechanism still inadequately affords great scope to initiative from below. It is a matter, in particular, of the aspiration to embrace not only the main proportions of the national economy and the directive assignments on the entire tremendously increasing product mix, which follow from them. An improvement of planning practice is required which would fully promote the development of the creative initiative of collectives, which often goes beyond the assignment received.

The plan, which outwardly is aimed at achieving a balance of its individual parts and the stability of its assignments, in practice is not always capable of ensuring them. During fulfillment the plan assignments inevitably change under the influence of newly arising needs, and this results in a chain reaction of changes which can upset the balance and stability of the assignments themselves. It is necessary to evaluate fully the phenomena of economic life which are connected with the noted shortcoming. The present practice of planning, including the mechanism of direct contact—the delivery of the directive assignment from the center to the performer—does not have an effective mechanism of feedback which enables production to adapt congruously and flexibly to social needs, including consumer demand.

Such a situation leads to a number of adverse consequences. First, disparity arises between the plan assignments and the real needs. Second, the adaptation of enterprises to meeting the needs of the population and the national economy is complicated, since such adaptation is often possible only on the basis of the decisions of superior levels of management. Third, experience attests that the evaluation of the activity of enterprises and the system of incentives, which is constructed on the basis of the indicators of the directive assignment, arouse the interest of enterprises, associations and ministries in a reduced plan.

2. L. I. Brezhnev, "Rech' na Plenum Tsentral'nogo Komiteta KPSS 27 noyabrya 1979 goda," p. 26.

Because of this, regardless of the outlined goals a conflict appears between the interests and aspiration of the state for stepped-up plans and the real conditions of their realization. In this connection the questions arise: what should the stepped-up plan be like, how should it be formulated and stimulated so that the noted conflict would not exist, while the interests of the state and the collective would be combined sensibly?

Previously it was presumed that a cost accounting interest in a stepped-up plan can be created if the formation of incentive funds and, consequently, the payment of bonuses as a whole are made dependent on a number of fund-forming indicators: the level of profitability, the increase of the volume of sales, labor productivity and products of the highest quality category.

Such a procedure, which was introduced after 1965, had a positive influence on the development of the economy. However, it did not create the proper interest in the stepped-up plan. In our opinion, the reason lies, so to speak, in a certain automation of material stimulation, when the formation and use of cost accounting stimulation funds are incorporated beforehand in the directive assignment. With a moderate increase of the quantitative indicators each collective in such a case without particular effort can create stimulation funds and use them, although the deliveries of products are not always made in the full amount. The bulk of workers and employees, as a rule, fulfill and exceed the norms, achieve the appropriate indicators and receive bonuses. Under such conditions the collective does not sense an acute need for a stepped-up plan.

In this connection the practice of counterplanning arose, when the collective assumes additional obligations as compared with the previously drafted plan. Such a practice, which is conducive to the display of the creative initiative of the collective, is extremely necessary. However, in its present form it does not, in our opinion, completely solve the problem of the adoption by the collective of a stepped-up plan. For the stepped-up plan does not come down only to an increase in the growth of output, but presumes its constant updating and the improvement of quality. In some instances this can be achieved as a result of the more complete utilization of the available production areas and capacities, in others by the improvement of economic contacts and supply, and in still others by carrying out the modernization and renovation of production and so on.

How and in what combination can the collective use these reserves? Even if the existence of adequate interest is presumed, it must be noted that the collective does not always have an opportunity to implement the indicated measures. As a rule, this depends on whether such measures are stipulated in the plan approved by the superior level. If they have not been, it is very difficult to achieve them; if they are stipulated, the funds and forms of stimulation automatically ensue from them. In such a case negligible opportunities remain for the display of the initiative of the collective.

The limitedness of the initiative of the collective is predetermined by the shortcomings of material and technical supply, which have become a serious obstacle to the adoption and fulfillment of stepped-up plans.

Certain improvements have occurred lately in this direction. The accounting of the fulfillment of the plan is being carried for the third year according to the deliveries of products and in accordance with concluded contracts, which has increased the interest of collectives in the observance of plan assignments according to the products list and of the conditions of economic contracts. Nevertheless there are still many plants and even sectors which are not completely filling the orders of customers and are not coping with the obligations on deliveries. This pertains to enterprises of ferrous metallurgy, the timber and wood processing, electrical equipment and light industries. For example, during the first quarter of this year the enterprises of the electrical equipment industry fulfilled the plan on the sales volume by 102 percent, while they fulfilled the plan on deliveries by 95 percent. The collectives of a large number of enterprises are not providing enough of many types of products needed by society, which is leading to the disturbance of the proportionality of production and the balance of the economy, but even then they may receive bonuses.

Given this situation, in spite of the steps taken, the collectives of enterprises are still inadequately interested in the adoption and fulfillment of stepped-up plans, the acceleration of scientific and technical progress, the improvement of the quality of items, the flexible adaptation to the needs of customers and the fulfillment of contractual obligations on deliveries on the agreed dates. These phenomena of economic practice have been known for a long time and the need to eliminate them has been repeatedly indicated in party documents. And if they nevertheless remain, it is necessary to gain an understanding of the reasons for their tenacity.

We see an important reason for the continuation of the noted phenomena in our economy in the incomplete conformity of the organization of planning to the actually existing conditions of reality, particularly the objective nature and role of collective economic interests.

In this connection let us examine the relationship of the centralized plan and the cost accounting independence of the collective: is the latter a simple continuation of the former or does each of these interrelated aspects have its own content? If the former assumption is correct, the connection between centralized planning and cost accounting activity is achieved by the simple transfer of the plan assignment from the highest link to the primary link. In this case the plan assignment accomplishes, so to speak, a unilateral directive movement. If the latter assumption is correct, the indicated connection is of a more complex nature which requires, as we will show below, the counter movement of the plan assignments.

To obtain a valid answer to the posed question it is necessary to turn to the theoretical aspect of the problem. The theoretical roots of its solution go back to the understanding of economic interests under socialism. The recognition of the decisive role of national interests, their coincidence in the end with collective interests, the dependence of the latter on the former are the basis of their understanding. This, however, does not mean their direct coincidence in all instances.

In the process of economic activity within a certain unity an isolation of the collective interests basically takes place, which, in our opinion, constitutes the economic content of the relative independence of socialist enterprises.

It results objectively from the fact that the socialist enterprise acts as a commodity producer, that is, it produces and sells its product as a commodity. This objective circumstance gives rise to the isolation in one form or another of collective interest from common interest. There has not been and can be no such commodity producer, who would not have his own interest and would not pursue it in the process of his activity.

Under these conditions the production of what is more profitable to the collectives of enterprises and to the detriment of the national economy, despite the high level of their social consciousness, becomes possible. The cases of the violation of the planned products list, just as a number of other negative phenomena of economic practice, primarily result from the circumstances which arise, especially of material and technical supply. But their consequences do not change because of this.

Since each type of interest (national, collective, personal) is objective and relatively independent and does not directly coincide with another type, their interrelations assume a complicated and contradictory nature. Of course, it is impossible to ensure the planned nature of the development of the economy without the mandatory fulfillment of the centralized plan. The directive nature of the plan assignments and their coordination objectively serve as a necessary condition of the unity of the process of reproduction, which is aimed at the achievement of the ultimate goal of all social production.

At the same time the question arises of the further improvement of planning with allowance made for the potentials of the centralized nature. There exists the notion that these potentials are unlimited, but are not being utilized by planning workers, who are not taking something into account. Such oversights, to be sure, do occur. Nevertheless, it seems to us, there is another factor which is responsible for the occurrence of cases of the nonconformity of the centralized plan to the diversity of real needs.

Collective interest acts as one of the objective bases of such a nonconformity. And if the recognition of the relative isolation of an enterprise and of the independent importance of collective interest is of a realistic nature, it obliges us to draw theoretical and practical conclusions.

Collective interest, in having an objective tendency to be isolated from national interest, is being transformed in such a way that it is beginning to play an independent role in economic development. The practice of national economic planning obviously does not adequately take into account the independent role of collective interest, regarding it as a simple continuation of general interest. Meanwhile they do not always coincide, especially if the plan assignments are poorly coordinated with the production potential or are not completely backed by resources.

The development of plan assignments for enterprises and associations, in our opinion, should be accompanied by the more complete consideration of the peculiarities and potentials of the collectives. Here it is impossible to recognize as sound the plans not backed by resources. Such phenomena have neither theoretical nor practical justification. They stem from the identification of the plan with the centralized assignment, with the aim of the latter at covering not the main, but all

production proportions. But with the increase of the products list and the complication of relations in the national economy the discrepancy between the plan and the real needs will still be felt.

The irregularities in the trade in such goods which are customarily called "trifles": the simplest medicines, soap, laundry powders, tooth brushes and paste, needles, thread, baby clothes and other goods of light industry, were noted among the serious deficiencies at the November (1979) CPSU Central Committee Plenum. Of course, the planning organs are working on these problems, but it is not ruled out that meanwhile other problems will arise.

It is difficult to take into account and meet the rapidly increasing diversity of needs by fulfilling only the directive assignments. It is necessary to meet some of the increasing needs by the expeditious adaptation of the activity of enterprises to the requirements of consumer demand. But for this it is necessary for the collectives of enterprises, first, to be directly interested in this; second, to have adequate independence in their activity. The restriction of the cost accounting initiative of collectives would mean a weakening of the effect of an irreplaceable source of economic growth. Therefore, to step up the growth rate and increase production efficiency it is expedient to supplement the directive assignments with the independent enterprising activity of labor collectives. Here the counterplan should express the precise amount of economic independence and responsibility of the collective.

We are proceeding on the basis that the directive assignments are not always able to take fully into account all the reserves available in the national economy. This can be done by the collectives of enterprises, which can adopt counterplans on their own initiative and thus form bonus funds on the basis of the real increase of the efficiency of their production. The national economic plan, in addition to the centralized assignment, also includes the counterplans, which were adopted on the initiative of the collectives themselves and can be accomplished on the basis of the direct contacts of enterprises. The counterplan expresses genuine initiative and enterprise only when it is based on the genuine interest of the collective and its potentials and is backed by the necessary resources.

The independently undertaken economic activity of the collective, of course, is included in the national economic plan as anticipated fulfillment. The balance of the plan and the conformity of the actually achieved indicators to the real needs of the national economy are ensured precisely during fulfillment. Therefore it seems that for a number of types of products which meet the needs of the population and production the collectives of enterprises should have an opportunity to assume greater obligations in their counterplans.

It is impossible and there is no need to plan in the same way both the production of cotton and the enormous assortment of items made from it. It is possible to specify the macroproportions by way of directive, while it is possible to regulate the microproportions also on the basis of the counter obligations.

The measures proposed here shift the main burden of planning work at the center and locally, particularly in the collectives, from the elaboration of plan assignments and indicators to their fulfillment with the establishment of the degree of

responsibility of each level of management. It must be assumed that with such an approach all collectives will be interested in seeking and utilizing the production potential, especially in utilizing material and manpower resources efficiently for the actual backing of counterplans. But a system of stimulation, which includes both incentives and penalties, which are appreciable to everyone and are paid from the material incentive fund, should better further this goal.

This question is of extremely great importance. At present the penalties do not have an adequate influence on the fulfillment of contractual obligations for two reasons, namely: the penalties are paid from the profit, but they do not affect the wages; with the current practice it is always possible to shift the blame to others. Thus, the Riga Kompressor Plant regularly does not receive enough components for refrigerators from one of the production associations of the Ukraine, which explains the nonfulfillment of its obligations by the fact that it is not receiving the necessary materials from the Karacharovo Plastic Plant. The latter, in turn, claims that the blame belongs to the plant which is not supplying it with phenoplast, and so on.

In order to tighten up planning discipline it is first of all necessary to achieve the unconditional fulfillment of the directive assignments. But for this they should, first, be backed by resources and, second, the receipt of the guaranteed minimum wage should be linked with their fulfillment. Here the units of economic management should be given rights of planning to the same extent that they bear responsibility for the fulfillment of the assignments outlined by them.

Such a practice places at the center of attention of planning work the meeting of real social needs and, consequently, will ensure the necessary balance of the national economy. With the complication of intermanagement relations with respect to specialization and cooperation, flexible planning, which is capable of adapting flexibly to the rapidly changing needs of the national economy, becomes possible.

The system of economic stimulation is called upon to promote the successful fulfillment of both the directive plans and the counterplans and the flexible adaptation of enterprises to social needs. Perhaps such a version of the organization of the stimulation of the intensity of plans and the fulfillment of contracts on deliveries should be discussed during the coming five-year plan and an attempt should be made to make the wage of the worker more dependent on the result actually achieved. For this, it seems to us, it would be possible to link the bulk of the wage with the main plan assignment. As to additional (bonus) forms of pay and their amounts, they can be determined to a greater extent by the adoption and fulfillment by the collective of a counter (additional) plan assignment and, of course, the fulfillment of contractual obligations on deliveries.

Given this situation, the counterplan becomes mandatory for the labor collective owing to economic necessity. It serves as a condition of the increase of the wage fund for the cost accounting collective by means of the bonus capital earned by the collective as a result of its fulfillment.

Of course, the profit which has been freed of the factors of its increase which do not depend on the activity of the collective can be a source of bonus funds. As to its amounts, in our opinion, it is important to ensure the more and more

anticipatory increase of labor productivity over the average (basic and additional) wage.

The improvement of the system of planning and stimulation presumes the solution of a number of related questions, on which the effectiveness of the measures being outlined depends to a great extent. But they are of independent importance and are not examined here. It is most important to specify the approach to the problems of improving planning and stimulation from the point of view of the specific nature of socialism, which is based on public ownership and requires the practical participation of workers in production management.

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INDUSTRIAL DEVELOPMENT AND PERFORMANCE

INTERSECTORIAL INDICATORS DISCUSSED

Moscow VESTNIK STATISTIKI in Russian No 12, Dec 80 pp 23-30

[Article by L. Gol'denberg: "Questions of the Elaboration of Indicators of Intersectorial Ties in Industry"]

[Text] The organs of the USSR Central Statistical Administration elaborate intersectorial reporting balances of the output and distribution of products for the national economy of the country and the union republics (according to an extensive list of sectors) once every five years.

For the purposes of increasing the effectiveness of these balances the USSR Central Statistical Administration along with compiling intersectorial reporting balances for an extensive list of sectors has organized since 1975 their annual drafting according to a short program. In some union republics intersectorial reporting balances are also drawn up annually. Now the task of organizing this work in all the union republics is arising.

The annual intersectorial reporting balances according to the short program, as practice shows, have certain merits as compared with the intersectorial reporting balances according to an extensive list of sectors: they are compiled each year, are compact in form and content, are more suited for the conversion of their indications into indicators in comparable prices and so on. These balances are already being used in planning work for the analysis of the structure and proportions of the sectors of the national economy and for forecasting estimates for the five-year plan and the long-range future.

The arrangement of the annual intersectorial reporting balance remains the same as in the elaboration of the intersectorial reporting balance according to an extensive list of sectors. Only the number and list of sectors, which are distinguished in the balance, change. In order to compile the republic intersectorial reporting balances according to the short program it is advisable to reflect the indicators of the imports and exports of products in the form of a balance (exports minus imports) in the second quadrant of the intersectorial reporting balance, and not in detailed form (the imports of products in the resource portion of the balance and the exports in the distribution portion). This proposal, without affecting the economic content of the arrangement of the intersectorial reporting balance and transforming this arrangement into a classical arrangement, at the same time reduces considerably the labor intensity of the operations on compiling the balance, since

the complicated and protracted elaboration of the indicators of the imports and exports of products need not be done annually. At the same time the amount of the balance of the imports and exports of products in a republic can be obtained by subtracting from the amount of resources of each sector (the output which includes the double counting of the trade and transportation markup) the total amount of productive and nonproductive consumption, accumulation, the replacement of retired fixed capital and other expenses.

The list of sectors of the intersectorial reporting balance according to the short program, which was submitted for the approval of USSR Gosplan and has been in effect since 1975, includes 18 sectors of physical production (of them 13 are sectors of industry): 1. Electric power engineering. 2. The petroleum and gas industry (the oil-drilling, petroleum refining and gas industries). 3. The coal industry. 4. The remaining fuel industry (the peat and shale industries). 5. Ferrous metallurgy. 6. Nonferrous metallurgy. 7. The chemical and petrochemical industry. 8. Machine building and metalworking. 9. The timber, wood processing and pulp and paper industry. 10. The construction materials industry (including the glass and ceramics industries). 11. Light industry. 12. The food industry (including the milling and groats industry). 13. Other sectors of industry (the microbiological, mixed fodder, printing and other sectors of industry). 14. Construction. 15. Agriculture and forestry. 16. Transportation and communications. 17. Trade, procurement, material and technical supply and marketing. 18. Other types of activity of the sphere of physical production.

Statistical reporting, although it performs a very important role in monitoring the fulfillment of plan assignments and contains a great number of indicators, does not make it possible to obtain all the data necessary for the construction of intersectorial reporting balances. Let us recall that a large one-time survey of enterprises, construction projects and organizations of all sectors of the national economy is conducted in order to draw up such balances according to an extensive list of sectors. The maximum utilization of the prevailing statistical reporting is stipulated for the purpose of saving financial and manpower resources, as well as shortening the period of the elaboration of the intersectorial reporting balance according to the short program. All the box totals of the intersectorial reporting balance (the amounts of gross production, material expenditures, net production, consumption and accumulation funds and others) are taken directly from the balance of the national economy. The one-time survey of expenditures on production according to the short program is conducted only at industrial enterprises. For this the USSR Central Statistical Administration has drawn up "The Report on the Material Expenditures on the Output of Industrial Production" on form No 5-mz, which has been used successfully for the survey of industrial enterprises according to the results of their operation during 1975, 1976, 1978 and 1979. The report on form No 5-mz was drawn up differentially by sectors of industry and includes a limited number of indicators of material expenditures, the proportion of which predominates in the total amount of material expenditures of the corresponding sectors. For example, in the report on form No 5-mz for enterprises for the concentration of coal and the production of brick coal only one type of material expenditures is distinguished--coal; for the enterprises of machine building and metalworking--nine types of material expenditures (this is the largest number of indicators in the report), the proportion of which in the total amount of material expenditures of the sector (excluding amortization) comes to more than 90 percent. In all 38 sectorial

reports (forms) have been drawn up, including 4 in ferrous metallurgy, 2 in nonferrous metallurgy, 2 in the coal industry, 6 in the chemical and petrochemical industry, 5 in the timber, wood processing and pulp and paper industry and so on.

The report on form No 5-mz is a detailed breakdown of the material expenditures which are taken into account in the annual report of the industrial enterprise on form No 5 for the following lines: "Raw materials and basic materials," "Auxiliary materials," "Fuel," "Purchased components, semimanufactures and services of subcontracted enterprises," "Other expenses." The filling out of the report on form No 5-mz at the industrial enterprise, as a rule, does not require the keeping of special cumulative returns during the year under review, but is based on the data of analytic accounting, on the primary documents of materials accounting, the cards of warehouse accounting and other data.

The report on form No 5-mz is compiled as a whole for the enterprise without the distinction of the expenditures on the output of products of sectorial specialization at this enterprise.

Thus, "The Report on the Material Expenditures on the Output of Industrial Production" on form No 5-mz, being relatively simply to complete at industrial enterprises and to be processed by statistical organs, at the same time with the minimum number of indicators gives the necessary information for the determination of the intersectorial ties in industry. However, the further improvement of the report, particularly its inclusion in the annual report of the industrial enterprise as an appendix to form No 5, is necessary. Otherwise a special organizational case arises, in case of which a one-time survey of industrial enterprises should be conducted each year.

The cumulative totals of the one-time survey, which are contained in the report on form No 5-mz, serve as the basis for the determination of the intersectorial ties in /industry/ [in boldface]. At first the indicators are calculated for the economic sectors which are used in accounting and planning and then they are converted into the indicators of the pure sectors of industry which are the basis for the intersectorial reporting balance. The missing types of expenditures which are calculated on the basis of the materials of the survey of industrial enterprises for 1977 ("The Form of the One-Time Accounting of Expenditures on the Output of Production in Monetary Terms for 1977" on form No 1) which were adjusted by the gross production volume of 1978 or subsequent years are added to the same types of materials expenditures which are taken directly from the report on form No 5-mz.

It should especially be noted that the data on the structure of the expenditures, which were obtained on the basis of the elaboration of the intersectorial reporting balance for 1977, which is the base year for the entire period up to 1982 when the next balance according to an extensive list of sectors will be compiled, can be used for making individual calculations when compiling the annual intersectorial reporting balance according to the short program.

The diagram of the calculation of the expenditures on the output of products of machine building and metalworking (an economic sector) is cited below as an example.

**Diagram of the Calculation of the Expenditures on the Output of Products
of Machine Building and Metalworking**

1	2	3	4
	Code of material expenditures in report on form No 5-mz	Code of expenditures in blank on form No 1 for 1977 (column 1)	Designation of united sectors in annual intersectorial reporting balance (like types of expenditures from all sections of the diagram are added up)
I. Total expenditures on output (section VIII + section IX)	(no code)	119	X
II. Total expenditures of raw materials, materials, fuel	X	108	X
III. Gross production in current wholesale prices (gross production of "SO")	(no code)	122	X
IV. Expenditures of products (extracted from the report on form No 5-mz)			
ferrous metals	0120	09	Ferrous metallurgy
production hardware	0150	12	Ferrous metallurgy
nonferrous metals	0220	14	Nonferrous metallurgy
products of machine building and metalworking	0700	27-39, 41-55, 57, 101	Machine building and metalworking
cast material, forged pieces, stampings, welded components for machine building	0710	40	Machine building and metalworking
chemical products	0800	15-26, 100	Chemical industry
products of logging industry	0910	59	Timber, wood processing and pulp and paper industry

[Table continued on following page]

1	2	3	4
products of sawmills and wood processing industry (excluding plywood)	0920	60, 61, 63	Timber, wood processing and pulp and paper industry
products of pulp and paper industry	0940	64	Timber, wood processing and pulp and paper industry
Total for section IV	X	X	X
V. Electric power and thermal energy (the data are taken from the consolidated report "Expenditures on Output" on form N-Z and are counted up by the gross production volume of "SO"*)	X	01	Electric power engineering
VI. The counting of material expenditures (the coefficient of the count is calculated according to the gross production of "SO"*)			
petroleum and gas industry	X	02-04	Petroleum and gas industry
coal industry	X	05	Coal industry
remaining fuel industry	X	06-07	Remaining fuel industry
ferrous metallurgy (except ferrous metals and production hardware)	X	08, 10, 11	Ferrous metallurgy
nonferrous metallurgy (ores of nonferrous metals)	X	13	Nonferrous metallurgy
remaining sectors of machine building (except those listed in section IV)	X	56, 115	Machine building and metalworking

/Table continued on following page/

1	2	3	4
other sectors of wood processing industry (except those listed in section IV)	X	62, 65	Timber, wood processing and pulp and paper industry
construction materials industry/	X	66-74, 102	Construction materials industry
light industry	X	75-83	Light industry
food industry	X	84-96, 98	Food industry
other sectors of industry	X	97, 99, 103, 104	Other sectors of industry
agriculture	X	105, 106	Agriculture and forestry
products of other types of activity of the sphere of physical production	X	107	Other types of activity of the sphere of physical production
payment for communications services	X	117	Transportation and communications
other types of materials expenditures (broken down according to the structure of 1977)	X	116, 118	Corresponding sectors of the national economy
VII. Amortization (a special calculation is made)	X	109	X
VIII. Total material expenditures (section IV+section V+section VI+section VII)	X	108, 109, 115, 116, 117, 118	X
IX. Wages and net income--excluding turnover tax and profit (a special calculation is made according to quadrant III of the intersectorial reporting balance)	X	X	X

*"SO" is the sectors of industry, which are specified by the All-Union Classifier "Sectors of the National Economy" (OKONKh). They are called "SO" in conformity with the system of notation which exists in industrial statistics.

In conformity with the cited diagram the expenditures on output are specified by sectors of machine building and metalworking, which are singled out in the intersectorial reporting balance for 1977 and then are combined in the summary indicators for machine building and metalworking. It should be noted that in the other united sectors of industry similar calculations are made, true, for more detailed specific sectors of industry which are singled out in the summary table on form "80" which is used in industrial statistics.

In addition to the calculations listed above, a final calculation is made of the material expenditures which are not included in the report on the expenditures on output. This pertains to the value of the processed raw materials of the client (raw materials supplied by the client), as well as to the value of the so-called difference for the intraplant turnover, which is defined for some sectors of industry as the difference between the value of the intraplant turnover which is included in the gross production and the value of the intraplant turnover which is included in the expenditures on output. The value of the difference for the intraplant turnover is shown in the material expenditures of the corresponding sectors as the intrasectorial turnover.

It is well known that one of the main principles at the basis of the construction of the intersectorial reporting balance is its elaboration for pure sectors of industry. In order to create these sectors the volume of their gross production should be established, and then the corresponding expenditures on its output should be determined. When constructing the intersectorial reporting balance according to an extensive list of sectors the calculations necessary for this are made on the basis of the information contained in the form of one-time accounting on form No 1. In particular, the data on the volume of the production which corresponds to the sectorial specialization and on the expenditures on the output of the production of sectorial specialization are cited on this form. Such data are not present in the report on form No 5-ay. Therefore when compiling the annual intersectorial reporting balance the question arises of the methods of converting the indicators of the expenditures on output for economic sectors into analogous indicators for pure sectors.

To determine the gross production volume for pure sectors it is possible to use the indicators of the annual report of the industrial enterprise on form No 8 (section III), in which the data on the output of production by its individual types (in physical and value terms) are cited. However, in the practice of industrial statistics these data are elaborated only in physical terms. In union republics with a large number of enterprises it would be very difficult to elaborate specially the indicators of section III of the annual report on form No 8 in value terms and it is hardly expedient if the following is taken into account.

It is unquestionable that as the sectors of industry are united, the proportion of production not corresponding to the sectorial specialization decreases, the volumes of production of the pure sectors approach the volumes of the corresponding economic sectors. Estimates show that with the consolidation of 100 sectors of industry (which are distinguished in the intersectorial reporting balance according to an extensive list) to 13 sectors in the balance according to the short program the volume of production of nonsectorial specialization decreases several fold.

The proportion of production of nonsectorial specialization in the total production volume of the main sectors of industry ranges from 1 to 6 percent. Thus, the

sectorial uniformity of the united economic sectors is quite high. Moreover, the practice of elaborating intersectorial reporting balances over a number of years shows that the proportion of the production of nonsectorial specialization for united sectors of industry in its dynamics retains a great stability. Consequently, the degree of change of the production volumes of economic sectors and of the pattern of expenditures on their output is also characteristic of the pure sectors of industry. One of the methods of calculating the indicators of the expenditures on the output of production for the pure sectors of industry, which we conventionally call the "index" method, is based on this conclusion. The index of the change of the expenditures on the output of various types of raw materials, materials, fuel and components (according to the list of united sectors of the annual intersectorial reporting balance) is determined for each united sector of industry on the basis of the data of the form of one-time accounting on form No 1 (column 1) and the report on form No 5-mz (for 1978 and subsequent years). These indices are multiplied by the amounts of the expenditures of the corresponding production in 1978 (according to the data of the intersectorial reporting balance for 1977). In this way the pattern of the expenditures on the output of production for each sector of industry which is singled out in the annual intersectorial reporting balance is calculated (see the diagram below).

The articulation tables for economic and pure sectors for 1978 can be of great assistance in establishing the volumes of the pure sectors and the expenditures on the output of production of these sectors in the annual intersectorial reporting balance. These tables are constructed without the double counting of the amounts of the trade and transportation markup, the turnover tax, the balance of the interrelations with the budget and the incompletely amortized value (in the wholesale prices of enterprises). For the pure sectors the data are taken from the intersectorial reporting balance for 1977 (with the appropriate adjustments), while the materials of the overall totals from the form of the one-time accounting on form No 1 (column 1), the calculations of the components of the net production, amortization and others are used for calculating the indicators for economic sectors. Such data make it possible to calculate the ratios between like economic and pure sectors by each type (sector) of material expenditures on the output, by each component of the net production, and then to use these ratios for converting the indicators for economic sectors into the indicators for pure sectors.

Other data of the reporting of industrial statistics, for example, the indicators of the report "The Expenditures on Output" on form N-2 (the summary of the annual report of the industrial enterprise on form No 5) are also used in the calculations. Although the components of the material expenditures ("Raw Materials and Basic Materials," "Fuel," "Auxiliary Materials," "Components and Services of Subcontracted Enterprises" and others) which are reflected in this report are more consolidated than the types of expenditures (sectors) in the intersectorial reporting balance, nevertheless the study of the trend of their change makes it possible to check the calculations of the expenditures on output in the intersectorial reporting balance.

An important source of information on the productive consumption of agricultural products (raw materials) in light and the food industries is the report "The Consumption and Surpluses of Agricultural Raw Materials" on form No 34-SP. The data of this report make it possible to check the indicators of the consumption of agricultural raw materials, which are obtained according to the results of one-time accounting (the report on form No 5-mz).

Diagram of the Calculation of the Expenditures on Output*

Components of expenditures on output and of the net production	Expenditures on output of production by economic sectors					Expenditures on output of production by pure sectors**	
	1	2	3	4	5	6	7
		1978 (according to data of report on form No 5-m, and special cal- culations--see diagram above)	1977 (according to data of form of one-time ac- counting on form No 1 and special calculations)	Index of expenditures $I = \frac{1978}{1977}$	1977 (indicators of intersectoral reporting bal- ance)	1978 (estimate)	
I. Material expenditures							
production of electric power engineering							
production of petroleum and gas industry							
production of coal industry							
production of other types of activity of the sphere of physical production							
for amortization							
Total material expenditures***							
II. Net production							
wages							
profit							
Total net production*** (ex- cluding turnover tax, the cal- culation of which is made separately)							

[See footnotes on following page]

/Footnotes to table on preceding page/

* The calculation is made without the double counting of the amount of the trade and transportation markup, as well as without the balance of the interrelations with the budget on the regulation of the prices for agricultural raw materials, which is shown in the material expenditures which are calculated separately.

** For column 5 of the table the value of the difference according to the intraplant turnover, as well as of the raw materials supplied by the client for 1977 is subtracted beforehand. After the multiplication of the data of column 5 by the index of expenditures (column 4) for the corresponding line items in column 6 the value of the difference according to the intraplant turnover and of the raw materials supplied by the client for 1978 is added.

*** The amounts of material expenditures and the net production for united pure sectors of industry can also be determined by the index method, here the sum of the amounts for the sectors should correspond to the amounts of materials expenditures and the net production for industry as a whole in the calculations of the national product and the national income of the union republic.

The indicators of the annual reports of kolkhozes and sovkhoses "The Expenditures on Output" on form No 6 are used for breaking down the data on the material expenditures on the output of production of /agriculture/ /in boldface/. The expenditures of industrial products on the output of agricultural products (fuel and lubricants, industrial fodders, including mixed fodders, toxic chemicals, biologicals and medicines, mineral fertilizers, electric power, solid fuel and gas, spare parts and repair materials and others) are shown in detail in these reports. It is also recommended to use the data of the annual reports of kolkhozes and sovkhoses on forms No 16 and No 20 (in the area of the consumption of fodders, spare parts and the total payments for the repair of agricultural machinery and equipment).

The volume of the internal turnover of production in agriculture (seed and planting stock, fodders, eggs for incubation, manure for fertilizer, milk for feeding calves and others) is established on the basis of the data of the balance of agricultural products at the farms of the producers.

The combined line items in the annual reports of kolkhozes and sovkhoses on form No 6 are broken down by sectors of the intersectorial balance by means of the materials of the one-time survey of kolkhoz and sovkhoses for 1977.

The physical indicators of "The Report on the Surpluses, Receipt and Consumption of Materials in Capital Construction" on form No 2-an with their subsequent valuation in final prices should be used for breaking down the data on the material expenditures in /construction/ /in boldface/. The indicated report contains the indicators of the consumption of many of the most important types of materials, components and items which are consumed in construction. Having calculated on the basis of this information the volumes of their consumption for 1977 and 1978, it is possible to obtain the indices of the change in the expenditures of individual types of materials, components and items in construction during the corresponding period. These indices are multiplied by the amounts of material expenditures in construction for the base year of 1977. The missing data are calculated on the basis of additional

information (for example, for rolled ferrous metal products and pipe from "The Control Balance of Finished Rolled Ferrous Metal Products, Steel Pipe and the Main Types of Nonferrous Metals by Sectors and Trends of Consumption" on form No 8-sn) or by the use of the pattern of the expenditures obtained from the materials of the survey of construction organizations for 1977.

To determine the consumption of construction materials (reinforced concrete components and parts, wall materials, glass and others) the indicators of the dynamics of their production (from the summary table on form "80," which is used in industrial statistics) should be used, taking into account at the same time that they are mainly consumed in construction.

The other indicators of the annual intersectorial reporting balance should be calculated in conformity with the procedure existing in the practice of elaborating such balances and in conformity with prevailing instructions.

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RESOURCE UTILIZATION AND SUPPLY

STATISTICAL ANALYSIS OF RESOURCE UTILIZATION EVALUATED

Moscow VESTNIK STATISTIKI in Russian No 12, Dec 80 pp 13-18

[Article by H. Borkhunov: "Statistical Analysis of Production, Distribution, and Final Use of Resources in an Interfarm Enterprise"]

[Text] The number of agricultural interfarm enterprises, organizations, and associations is growing constantly: at the end of 1979 there were more than 9000 of them. The activities of these enterprises are very varied: construction, production and processing of agricultural output, the preparation of combined fodders, etc. The analysis of each type of activity is specific and is linked with the use of a definite system of indicators.

The recommended scheme for analyzing the activities of interfarm enterprises as a whole makes it possible to obtain indicators that are comparable with the indicators for kolkhozes, sovkhozes, and other enterprises. The comparison of these indicators gives one an idea of how the produced product is being distributed and used in the various types of enterprises. Another task of analysis is the locating of reserves for their further development.

Using the example of the hog-breeding interfarm enterprise Progress, Grodnenskaya Oblast, Belorussian SSR, we would like to discuss the course of the analysis and procedure of computations pertaining to data for the 1979 annual report. These computations are primarily of methodological importance. The information that is of basic interest is the results of the computations made on the basis of the composite report data that characterizes the process of distribution, consumption, and accumulation in the interfarm enterprises.

The gross output of the interfarm enterprises and the component parts of that gross output are computed in Form No. 2, "Income and Its Distribution," for the individual branches of the basic production and construction activity. In order to obtain complete information concerning production, these indicators are totaled. By the very first stage of the analysis there arise methodological difficulties as a result of the fact that in the enterprise's annual report the material production expenditures are computed in two ways. The first method is based on the generalization of the accounting entries in Form No. 2; the second corresponds to the national-economic methodology of computation which is used when determining the country's national income (Form No. 6, "Indicators of Output Production,

Production Costs, and Labor Productivity"). Their difference lies in the fact that certain elements of expenditures (interest paid on loans; expenses for temporary-duty assignments; insurance payments; bonuses of individual types) are included in Form No. 2 as material production expenditures, but in Form No. 6 they are excluded from such expenditures. The difference usually is not large: the average deviations for the material expenditures for the country as a whole do not exceed 1.5-2 percent. In interfarm enterprises in Grodnenskaya Oblast they constitute only 0.3 percent. However, in the Progress interfarm enterprise the volume of material expenditures computed in Form No. 2 is 5 percent greater than in Form No. 6.

Inasmuch as certain elements of expenses are excluded from the material expenditures in Form No. 6, there arises the question: where should one enter them? According to their economic content they are part of the enterprise's gross income. Thus, as a consequence of the existence of two methods of computing the material expenditures, there also exist two methods of computing the gross income.

In Table 1, using the example of the data in the annual report of the interfarm Progress enterprise, we indicate the cost structure of the gross output, as computed by the two methods.

The indicators computed by the first method correspond completely to the report data, but their design contains certain inaccuracies: the volume of expenditures has been raised, and the volume of income has been somewhat lowered. With the second method the expenditures and income are reflected more accurately. The inclusion in gross income of the income paid on loans, insurance payments, and expenses for temporary-duty assignments makes it possible subsequently to reflect more completely the process of distribution of the income, for example, the interest paid on loans is indicated together with the loans that have been returned to Gosbank, and the insurance payments are shown together with the resources that have been transferred to their system. Although both methods provide close results, the former method of computation, practically speaking, is more convenient.

Items that are of interest are the absolute volume and cost structure of the output according to branches. The indicators can be taken in their dynamics, or one could also compare the analogous indicators of various interfarm enterprises and compare the cost structure of the output of the interfarm enterprises, kol-khozes, and sovkhozes.

A natural continuation of the analysis is the supplementing of the indicators of production with those indicators that characterize the distribution relations. The basic initial materials for the corresponding computations are contained in Forms No. 1, "Balance Sheet"; No. 2, "Income and Its Distribution"; and No. 3, "Movement of State Fund." The purpose of the computation is to indicate what part of the output and resources of the enterprise is transferred to other enterprises, organizations, or systems by way of fulfillment of obligations that have been stipulated, and during the carrying out of joint settlements. In the generalized form, the distribution of gross income and the transferral by the enterprise of other financial resources beyond its confines are shown in Table 2.

Table 1

**Volume and Structure of Gross Output with Different Methods of Accounting
(thousands of rubles)**

	Forms for annual report which contain the necessary indicators	Accounting method	
		I	II
1. Material expenditures	Method I: Form No. 2, line 050, columns 5 and 6	781.0	
	Method II: Form No. 6, line 020, column 1 Form No. 2, line 050, column 2	--	742.6
2. Payment of labor	Form No. 2, line 070, columns 5 and 6	156.1	156.1
3. Profit	Form No. 2, line 080, column 5		
	Form No. 2, line 090, column 5	76.6	76.6
4. Other elements	Form No. 6, lines 140-143, column 1	--	--
	Form No. 6, line 141, column 1	--	38.4
5. Gross output	totals of items 1-4	1013.7	1013.7

The computation makes it possible to get an idea of the proportions of the distribution of income and financial resources. The indicators computed at such time are based on the report data, but are more complete than that data. Such aggregated indicators are those pertaining to the intrabranh transfers to other kolkhozes and sovkhoses, and the return of funds to the credit system. In the latter instance the return of loans for capital investments is taken in full volume, but the loans for production needs are taken in the amount of their reduction from the beginning to the end of the year. The increase in monetary means kept in a current account, cash office, and special account in Gosbank is viewed as a temporary transfer to the credit system. The computations also take into consideration the monetary means withdrawn by debtors. Their increase as well as the reduction in creditor indebtedness (*kreditorskaya zadolzhennost'*) represent the temporary withdrawal of the interfarm enterprise's resources.

The indicators in Tables 1 and 2 reflect the correlation among the individual channels of transfers, as well as the volume of financial resources that remain after all payments. In this instance the interfarm enterprise, as a result of the output and income, compensated the expended producer goods, paid for the labor, and made the necessary payments and deductions.

Table 2

Distribution of Gross Income

	Forms for annual report which contain the necessary indicators	thousands of rubles
1. Gross income	Form No. 2, line 060	232.7
including:		
2. Payment of labor and bonuses	Form No. 2, lines 070, 140	167.7
3. Transferred to kolkhozes and sov- khozes that are participants in the association	Form No. 2, lines 231-233 Form No. 3, lines 380, 470	--
4. Credit returned	Form No. 1, lines 1130, 1131, 1140-1160, 1230	--
5. Payments to the budget	Form No. 2, line 180	--
6. Increase in in- debtedness (<i>debi-</i> <i>torakaya zadolzhennost'</i>)	Form No. 1, lines 410-451, 490, 560, 620, 640, 661	--
7. Other expenses	Form No. 1, line 1250 Form No. 3, line 410	7.7
8. Gross income, less all transfers	item 1 minus items 2-7	57.3

However, the indicators in Tables 1 and 2 do not provide the opportunity to judge the manner in which the enterprise is expanding its production and reinforcing its material-technical base. In order to fill this gap, the indicators of production and distribution must be supplemented by data concerning the receipt of financial resources for the interfarm enterprise (see Table 3).

The volume and structure of the received resources, their dynamics, can be widely used in the analysis. In our example the bulk of the receipts are shared contributions by the participating farms. In 1979 there were 19 of them (14 kolkhozes and 5 sovkhoses). However, the share of the sovkhoses in the shared contributions as of the end of 1979 was 39 percent. The means used as the source of financing were the monetary means of the association, the creditor means, and the means recovered from debtors. In this instance there is a considerable volume of construction operations, which makes it possible to lay the foundation for further development. This feature also manifested itself in the structure of the received financial resources. But on the whole it is typical of interfarm enterprises that the receipts of credit greatly exceed the returned loans, and the receipts from the shareholders exceed the volume of the resources returned to them. These correlations are typical of the particular stage of

development of the interfarm enterprises, since they are experiencing a period of establishment and accelerated development.

Table 3

Receipt of Financial Resources		
	Forms for annual report which contain the necessary indicators	thousands of rubles
Funds received:		
1. From farms participating in the association	Form No. 3, lines 110, 120, 230, 240	969.2
2. On orders from superior organizations	Form No. 3, line 160	--
3. From the credit system	Form No. 1, lines 1130, 1131, 1140-1160	--
4. Reduction of monetary means in accounts in Gosbank	Form No. 1, lines 400, 540	581.4
5. Increase in creditor indebtedness	Form No. 1, lines 720, 790, 960, 1031, 1082-1090, 1111	408.5
6. Other receipts	Form No. 2, line 290 Form No. 19, lines 580, 690, 780, 840	8.6
7. Total	total of items 1-6	1967.7

The data in Tables 1, 2, and 3 indicates the cost mechanism of reproduction in the interfarm enterprises, and on their basis one can easily trace the movement of the product and income from the moment of production to the moment of its final use. At first it is necessary to compute the volume of financial resources that are subject to final use. For this purpose we add the resources which compensate the expended producer goods (781,000 rubles); the balance of gross income (57,300 rubles); and the receipts by way of redistribution (1,967,700 rubles); and we get 2,806,000 rubles. Then it is necessary to carry out computations that characterize the structure of the final use of the financial means.

The final resources of the enterprise are represented by the compensation fund, the increase in material resources, and the elements of collective nonproduction consumption. The volume and structure of the compensation fund is characterized in detail in Form No. 6 of the annual report of the interfarm enterprise. The increase in funds is defined as the difference between them as of the end and the beginning of the year. If necessary, the total volume of accumulation can be differentiated. For example, the increase in fixed assets can easily be divided into the increase in production and nonproduction means (according to the data in Form No. 11). The nonproduction consumption, that is, the expenditures for the maintenance of children's institutions, personnel training, social and cultural

measures (data in Forms No. 1, 10, 19) must not include the funds expended for capital investments.

Finally, part of the enterprise's resources are used to compensate losses. The data concerning losses is dispersed among the several forms of the interfarm enterprise. Thus, the volume of losses from spoilage, shortfalls, and pilferage is indicated in Form No. 4, "Report on Shortfalls, Pilferages, and Spoilage of Material-Commodity and Other Assets." The losses from write-offs of completely stopped but incomplected construction are indicated in Form No. 2-ks (line 200). The computation must also take into consideration the loss from the preterm writing off of fixed assets as a result of their liquidation, that is, the under-depreciated value of those assets. Inasmuch as the proceeds from the sale of liquidated fixed assets are not indicated separately, the following scheme is possible for making computations on the basis of the initial data in Form 3:

1. Residual value of liquidated fixed assets. line 330
2. Balance-sheet value of sold fixed assets line 333
3. Monetary proceeds from sale of liquidated and
sold fixed assets line 170
4. Under-depreciated value items 1 + 2 minus item 3

In addition, the losses include, with a certain amount of arbitrariness, the write-offs from the state fund of working assets. By totalling the items that have been enumerated, we determine the total amount of losses and simultaneously the volume of income expended to replace them.

At the present time the annual report of the interfarm enterprise does not indicate a total volume of losses and does not tie the losses in with the income or profit. Some of the losses are included in the production costs and are considered to be nonproductive expenditures. The enterprise's state fund is reduced by the volume of under-obsolence and write-offs of ceased construction. At the same time, the connection between losses and gross income is obvious. Some of the income that has been deducted for the expansion of production actually compensates the losses. As a result, first of all, the fact of the losses becomes difficult to trace, and, secondly, the resources channeled into the expansion of production are overestimated. The proposed form of recording them partially corrects the situation (see Table 4).

Thus, the final resources of the interfarm Progress enterprise, which came to 2,806,000 rubles, were completely used. The excess resources (18,600 rubles) can be explained by errors in the methodology or in the bookkeeping entries. In addition the degree of discrepancies is extremely small.

The analysis of the final use of resources at the enterprise is linked with a computation of its structure by a comparison of some elements with others. It is beneficial to consider each element of the structure in its dynamics. The indicators in Tables 1-4 are interrelated and form a system of computations in which production, financial relations, consumption, and accumulation are represented as component stages in the single process of reproduction. As a result it is

possible to ascertain the role of credit and of intrabranh redistribution of resources in the development of the interfarm enterprise.

Table 4

Volume and Structure of Used Resources

	Forms for annual report which contain the necessary indicators	thousands of rubles
1. Compensation of fixed assets expended in the process of production	Form No. 2, line 050	781.0
2. Increase in fixed and working assets	Form No. 1, lines 360, 600-610, 710 Form No. 11, lines 010, 070, 570	2036.0
3. Nonproduction expenses	Form No. 1, line 1240 Form No. 11, line 560 Form No. 10, line 070	7.6
4. Losses	Form No. 4, lines 050, 120, 130 Form No. 2-ks, Section VII, line 200 Form No. 3, line 460	--
5. Total resources used	total of items 1-4	2824.6

By comparing the share of credit receipts and receipts from the participating farms in the final resources of the enterprise for the individual farms or for a number of years, one obtains an overall idea of the comparative state of affairs or the development of tendencies. In addition, the computations make it possible to ascertain the basic proportions of reproduction, the correlation among the the various incentives for the expansion of production, and a number of other factors. The introduction of details into the generalized analysis is the branch aspect of the analysis, that is, the individual study of the indicators that pertain to agriculture, to the processing industry, etc. It is also beneficial to correlate the basic economic features of the interfarm enterprises with the data pertaining to the participating farms. The purpose of this unification can be the ascertaining of the desirable shifts that have been achieved as a result of the specialization and cooperation of production.

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REGIONAL DEVELOPMENT

PARTY SECRETARY DESCRIBES PROBLEMS OF CHUKOTKA DEVELOPMENT

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 18 Nov 80 p 2

[Article by V. Kobets, under rubric "Vital Question of the Five-Year Plan": "To the North Without Any Rebates: First Secretary of the Chukotskiy Okrug Committee of the CPSU, V. Kobets, Discusses Problems in the Socioeconomic Development of Chukotka"]

[Text] Tremendous changes have occurred in Chukotskiy Autonomous Okrug, as they have throughout the country. On vast expanses where previously one could expect to meet only an occasional camp of a nomadic reindeer herder or the skin tent of a person hunting sea animals, one can now see the twinkling lights of numerous settlements and cities.

The northeastern territories have, as it were, grown closer to the rest of the country. The most important thing here is not that the distances have been shortened -- a question that is much more important is the socioeconomic development of the okrug. In December Chukotskiy Autonomous Okrug will be 50 years old. That half-century, one can state without exaggeration, contains the traces of a thousand years of development. When a nuclear power station was built in Chukotka, a local old-timer, who now is the famous writer Yuriy Rytkeu, suggested enclosing in the wall of the nuclear power station a lamp -- a *zhirmik* [oil lamp] -- in order to designate in a graphic manner the landmark in the development of our nation which used to have to gain its literacy by the light of the flame from tundra moss floating in melted fat.

Chukotka provides the country with fish, furs, and reindeer meat; we plan to expand the production of tin, to build new mines and settlements, and to continue on a broad scale the research of the natural resources of the transpolar area. Consequently, what we need first of all is people. But I am in no particular hurry to make, through KOMSOMOL'SKAYA PRAVDA, the appeal to young people: "Come join us in Chukotka!" Because, in addition to work, we should be able to offer the newcomer first an apartment, or at least a room. And that is the problem that I would call the main one for the northeast. "Housing construction should be more closely tied in with the resolution of production tasks," Comrade L. I. Brezhnev emphasized in his speech at the October 1980 Plenum of the CPSU Central Committee. "The rates of assimilation of new areas in Siberia and the Far East . . . to a large extent are determined by the availability of good housing."

Chukotka continues to lag considerably between the other parts of the country with regard to the providing of people with housing and structures intended for their cultural and everyday needs. Moreover, a considerable amount of our housing consists of barracks and decrepit huts dating back to the 1930-1950's.

Construction is difficult here: every building that is erected in our part of the country costs 3 to 5 times more than in the central oblasts of Russia. Of course, the support of every worker in the transpolar area costs a pretty penny, but one should not forget the tremendous contribution that is made to the nation's coffers by the resident of Chukotka. We can already get a rather concrete idea of the prospects that our territory has for the production of scarce minerals not only for the immediate five-year plan, but also for the period up to the year 2000. The prospects are such that we will not be able to cope with them by using our present capabilities.

If Chukotka does not offer the newcomer, in addition to northern wages, a good apartment in an up-to-date settlement, I scarcely think that he will stay very long in the transpolar area, because the standard of living is rising everywhere. It might be, therefore, that the problem of the shortage of labor resources is only becoming aggravated for us: in Magadanskaya Oblast as a whole the average yearly number of persons coming to live and work here during the Tenth Five-Year Plan, as compared with the Ninth, dropped by 40 percent. The north does not need greenhorns. Instead, it needs people who are familiar with cold weather and with difficult work. In those currently few settlements in Chukotka where provision has been made for city-type comfort and the workers live not just for years, but for decades, one sees the formation of solid production collectives, and sees the new generation of real northerners grow up and start their lives.

The second path for the resolution of the problem of working hands, in our opinion, is in the improvement of the technology and organization of production. Scientists arm us with data concerning the considerable "overexpenditure" of live labor: in the extractive branches of the Asian North of the USSR today, for every person employed in basic production there are approximately six persons employed in the auxiliary and service branches, whereas, for example, in the Canadian North that ratio is equal to 1 : 1.5. Well, the fact of the matter is that each of the numerous organizations in the north tries to be self-sustaining: it has its own repair services, garages, communal enterprises, electric power stations. This occurs not because of the striving to live a good life: if you didn't create your own self-sustained unit, even a poor attempt at one, you would not be able to work or to be able to put your particular hopes on anyone. As a result, the number, for example, of departmental electric power stations in Chukotka is several hundreds. These low-power "dvizhki" ["mobiles"] provide electric power, which is 5-6 times more expensive than the power from the state power system. The way out of this situation is to expand the Bilibinskaya Nuclear Power Station and the state thermal electric power stations, and to install new electrical-transmission lines. Those measures would make it possible not only to save thousands of tons of diesel fuel and millions of rubles, but also to free thousands of working hands. And if one thinks of tomorrow, it is high time to engage realistically in preparing the draft for the first hydroelectric power station in Chukotka -- on the Anguem River.

Chukotka will not be assimilated by temporary people or "temporary versions." This pertains not only to construction and power-engineering. From year to year there has been a constant shifting of the roadbed of our permanent motor roads in our part of the country. And so the drivers are forced to beat up the expensive vehicles in temporary ruts -- "símiki" [winter roads]. Because of the lack of roads the periods of time required for the construction of new enterprises and settlements are dragged out, and equipment idle time occurs: it takes a colossal amount of effort and funds to construct gigantic warehouses that are needed to store the yearly reserves of foodstuffs, fuel, and building materials and to carry them from "símik" to "símik." If we had just one permanent motor road from Mys Shmidtta to the port of Igvekinot, we would be able to get a saving of time and money and free thousands of working hands.

Chukotka, like the rest of the north, is experiencing a shortage of technology designed for northern use. It is completely obvious to everyone: any piece of equipment here is subjected to more considerable wind, temperature, and other natural loads than anywhere else. But, unfortunately, motor vehicles and other equipment are still not being produced in northern versions in large amounts. The labor-saving policy must be made the pivotal point in the mastery of the transpolar area. So long as it costs much more to maintain a person here than anywhere else, it should be a rule that one must introduce scientific-technical achievements, primarily into the management of the northern areas. It has been computed that the reduction of a single worker in basic production in the mining industry of Magadanskaya Oblast as a result of the introduction of new technology provides a benefit to the national economy of 19,000 rubles a year.

It would be unthinkable to imagine the future transpolar area without reindeer breeding. More than half a million domesticated reindeer roam across the Chukotka tundra. This is the largest herd in the world. Technical progress has also touched northern agriculture. But life has shown that in the most ancient branch it is necessary to search for the intelligent combination of technical innovations and the traditional way of life. Reindeer-breeding sovkhozes have had powerful all-terrain vehicles put at their disposal, but soon they encountered the problems with spare parts, repair, and the delivery of fuel over tremendous distances. In addition the heavy caterpillar-tread vehicles mercilessly destroy the vegetation cover in the tundra. Meanwhile people rushed to forget such a time-tested "transport" means as the use of dogsleds or horses, which now, unfortunately, have become an extreme rarity in the tundra. Reindeer breeders today listen to the radio and subscribe to newspapers. Medical workers, agitation brigades, mobile motion-picture units, and a library fly in to visit them at the most distant nomad sites. But the reindeer breeder's work today continues to be difficult. This profession requires serious work habits and knowledge. In this regard we have begun to examine carefully the professional orientation of today's school-children. It has turned out that the children of reindeer breeders, almost from birth until they reach adulthood, live in boarding schools in large settlements and, practically speaking, have no contact with the tundra. In order for young people to show more eagerness to enter our agriculture, reindeer-breeding labs are created in the schools and the children are taught how to operate modern technology: a radio set, a snowmobile, jeep, and motorboat. More and more frequently the parents take the children into the tundra for the summer. But even this is insufficient. The labor and everyday living conditions of the tundra resident continue

to be unprestigious in the eyes of the young people. During the era of satellites and nuclear icebreakers, the reindeer breeder's mobile home continues to be a hide tent, and the means of heating it is the campfire. For many years there have been reports in the press about experimental models of technology for the north -- for an air cushion -- and about comfortable, transportable huts for reindeer breeders, with each hut having its self-contained electrical supply and electric heater, and we have also read about similar excellent inventions. But so far the only technical progress that has been "bestowed" on the reindeer breeders has been cold wooden huts, the design of which, moreover, does not withstand the long hauls they are subjected to. Reindeer breeding in Chukotka is not simply meat and warm hides. It is a promising branch that yields millions of rubles in profit. It would be a good thing if the young scientists thought a bit about delivering the most up-to-date achievements to the people in the tundra for their use.

Those, briefly, are the kinds of problems that we have to think about and to resolve if Chukotka is to develop comprehensively, efficiently, and with a long-term prospect.

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REGIONAL DEVELOPMENT

FINANCE MINISTER DISCUSSES ARMENIAN SOCIOECONOMIC DEVELOPMENT

Moscow FINANSY SSSR in Russian No 11, Nov 80 pp 13-16

(Article by T. A. Zatikyan, First Deputy Minister of Finance, Armenian SSR: "Economics and Culture of a Reborn Nation")

[Text] "As we approach the sixtieth anniversary of the establishment of the Soviet authority and the formation of the Communist Party of Armenia, our nation looks confidently into the future. We see before us the bright horizons and clear goals and we know very well the path that leads to them," L. I. Brezhnev said. For the successful movement forward along that path, we need labor — stubborn, unceasing, creative labor — the greatest degree of organizational spirit and solidarity among the party and the nation, a solidarity reinforced by the life-confirming Marxist-Leninist ideas.

The results of the years that have gone by reinforce our faith in the correctness of the course set down by Lenin and carried out by the Communist Party. During this period of time the national economy of Armenian SSR has moved ahead substantially. There has been a fundamental change in its structure. The volume of industrial production in 1979, as compared with 1913, rose by a factor of 361.8, with the production of producer goods (group A) increasing by 733.6 times and consumer goods (group B) increasing by 167.1 times. The component that has become the leading branch is industry, which, in 1978, produced 68.6 percent of the gross national product.

The republic has 13 production and scientific-production associations, the share of which is 51.5 percent of the total industrial output. Industry is based chiefly on the republic's own minerals. The planned use of the local natural and labor resources has made it possible, in addition to remodeling and expanding the traditional branches (copper, wine and cognac, rugs), to develop additional new branches.

A leading place is occupied by machine-building, metal-processing, the chemical and petrochemical branches, light, food industry, nonferrous metallurgy, the building-materials industry, and electric-power engineering. The capacity of electric-power stations as of the beginning of 1979 reached 3132.5 megawatts, as compared with 3.1 megawatts in 1913. The Vorotanskiy cascade of hydroelectric power stations is under construction. Armenia's energy system is part of the

Transcaucasus Single Energy System, and, through it, is linked with the energy system of the European part of the USSR.

Armenia's machine building is characterized by the accelerated development of branches with low metal-intensity (the electronic branch, radio industry, instrument-building, electrical-engineering branch, precision machine-tool-building). Motor-vehicle construction and the production of compressors, hydraulic pumps, and passenger elevators are also developing.

During the years of the Soviet authority, three chemical complexes have been formed: the acetylene complex, the complex for the production of calcium cyanamide, nitrogen fertilizers, melamine, and carbamide, and the complex based on the salvaging of sulfurous gases from copper-smelting production (sulfuric acid). The conversion of the production of acetylene to natural gas was of great economic importance. At the present time the republic has seven large-scale chemical associations and enterprises that produce more than 1500 types of output, including acetylcellulose, acetate rayon, synthetic resins, new grades of chloroprene rubber [equivalent to neoprene], automobile tires, industrial rubber articles, and articles of everyday chemistry.

This branch is typified by the specialization of the enterprises and by the broad intrabranched and interbranched ties with many of the country's economic regions. The Yerevan Chemical Plant supplies acetylene, chlorine gas, and caustic soda to the Polivinilatsetat Plant, and chloroprene rubber to the industrial rubber articles plants and Yerevankabel'. Polivinilatsetat provides the republic's enterprises with raw materials for the production of acetate rayon, water-emulsion and ground-pigment paints, and enameled wire. The Yerevan Chemical Plant is the only plant in the USSR that produces chloroprene rubber, and Polivinilatsetat is the largest supplier of vinyl acetate and its derivatives. The output of these enterprises is used by more than 2500 customers.

The building-materials industry is based on the use of igneous rocks that have unique decorative and physicochemical properties -- tuffs, pumice, perlites, slags -- as well as limestones, nepheline syenites, basalts, granites, and marble. There is a considerable production of prefabricated reinforced-concrete and concrete structurals (more than 40 percent of the gross output in the branch). Production that is of nation-wide importance is the production of wall units out of variously colored tuffs, light-weight fillers, and articles made from them, marble, cement, and also refractory articles.

The food industry is based on the processing of grapes and southern varieties of fruits and vegetables. The major branches are the wine-and-cognac and the canned fruit branches. The production of Swiss cheeses and the bottling of mineral waters are well developed, and salt is mined in the republic. In light industry the leading branch is textile production, especially the production of knitwear, woolen garments, and footwear.

During the years of the Soviet authority there have been fundamental changes in agriculture. The volume of agricultural production increased by a factor of 4.5 despite the sharp decrease in its proportionate participation in the republic's economy. In Armenia the soil and climatic conditions are extremely varied. This

explains the fact that, despite the limited territory, the number of branches of agriculture is unusually large. The total land area in Armenia is 3 million hectares, including 46.6 percent that is suitable for agriculture, and approximately 13 percent forests and undergrowth; more than 40 percent of the land is unsuitable for agricultural use. Plowed land occupies 476,000 hectares; hay fields, 192,000 hectares; and pastures, 696,000 hectares.

At the present time the republic has 457 sovkhozes and 312 kolkhozes, which have at their disposal 12,500 tractors (in terms of 15-horsepower ones), 1500 grain-harvesting combines, 14,700 trucks. The delivery of mineral fertilizers has reached 496,000 tons. The area of irrigated land is 282,400 hectares (compared with 97,000 hectares in 1913) and irrigated pastures, 60,000 hectares.

The republic has put into service 1500 interfarm and intrafarm canals, of which the largest are the Artashatskiy, Oktemberyanskiy, Arzin-Shamiranskiy, Nizhne-razdanskiy, Talinskiy, Kotayskiy, and the Shirakskiy. Mechanical irrigation is being used on a broader and broader scale to assimilate mountainous terrain with sharply broken relief. More than 16 percent of the land is irrigated with the aid of pumping stations, such as the Arevshatskaya, Mkhchanskaya, Noyemberyanskaya, and Aygerlichskaya.

A broad program of water-management projects is planned. A typical trend is the regulation of the runoff of mountain rivers in addition to the use of natural bodies of water for the purpose of accumulating the previously unused water resulting from the thawing of snow during the winter-spring period. The irrigation and reclamation projects involving the draining and water support of soda solonchaks in the Ararat Valley will make it possible to include these areas in agricultural turnover, as a result of which additional capabilities will arise for increasing the production of valuable southern crops.

In the area of animal husbandry, special attention is devoted to the complete reinforcement of the fodder base by expanding the sowings of the varieties with the highest harvest yields. Commercial poultry breeding is developing on an industrial basis; new poultry plants are being built and the existing ones are being expanded.

The development of industry, agriculture, and other branches has led to an increase in the freight turnover of rail transport, the share of which is 35.6 percent of the total freight turnover. The total length of the railroads is 707 kilometers, as compared with 362 kilometers in 1913. The technical re-equipping, electrification, and improvement of the transportation process made it possible to increase the freight turnover by a factor of 103.2 times. In 1979 rail transport carried 19.2 million tons of freight. However, as a result of the limited opportunities for development of the railroad network, automotive transport is taking on greater and greater importance. Its share in the overall freight turnover is 44.9 percent. The total length of motor roads, excluding department ones, is 9,100 kilometers, as compared with 1000 kilometers in 1913. The freight turnover of motor transport in 1979 reached 4200 ton-kilometers, with a shipment volume of 70.3 million tons; 361.5 million passengers were carried.

Air transport links Armenia with many major cities in the USSR. An international

air line is in existence between Yerevan and Beirut. Aviation is being used increasingly in agriculture and in the processing of forested areas.

Prior to the revolution the basic type of communication in Armenia was the postal service, which served the city population. A telephone station operating 250 numbers was in operation in Yerevan only. During the period between 1940 and 1979 the number of enterprises in the postal service, telegraphic service, and telephone communications increased from 242 to 810. In 1956 the Yerevan television center was activated. The republic's radio and television services broadcast in Armenian, Russian, Azerbaijani, and Kurdish, and also in Armenian and Arabic for foreign listeners. The broadcasting time is a total of 254 hours a day. Relay equipment makes it possible to watch television broadcasts in almost all parts of the republic. In 1965 the Moscow-Sochi-Tbilisi-Yerevan radio-relay line was activated. That line carries television broadcasts from Moscow and other cities in the USSR, as well as Intervideniye [International Television] programs.

The tremendous changes in the republic's economy were a solid base for raising the material welfare and cultural level of the Armenian nation. During the period from 1965 to 1969 the national income rose by 294.7 percent; and the public's monetary income by 190.4 percent. Approximately 22.5 percent of the monetary income is in the form of benefits paid to workers and employees from social consumption funds. The total volume of retail commodity turnover in 1979 reached 2,384.4 million rubles, as compared with 831.6 million rubles in 1965. Housing construction took on great scope. During the period being considered, 5.9 million square meters of housing area were activated.

The republic extended a broad network of hospitals, polyclinics, and women's and children's consultative clinics and other therapeutic institutions. A large amount of attention is directed toward training medical personnel. For every 10,000 inhabitants in 1979 there were 34.7 physicians and 85.1 hospital beds, whereas in 1913 there were, respectively, 0.6 physicians and 2.1 hospital beds.

There is a well-developed network of institutions for the protection of motherhood and childhood. In 1979 226 women's consultative clinics, children's consultative clinics, and polyclinics, and 2763 beds for pregnant women and lying-in patients were in operation. There is a broad network of sanatoriums and health resorts in operation. Every year 329,900 adults and children recuperate in sanatoriums and rest homes. Sports have become very widespread. In 1979 the republic had 3078 physical-culture collectives, 21 sports stadiums, 48 soccer fields, and 788 volleyball, basketball, and tennis fields. In 1980, 129 million rubles were allocated from the state budget for public health and physical culture.

In 1979 the birth rate per thousand of inhabitants was 22.8, and the death rate, 5.6 (compared with 34.8 and 18.6 in 1913); the average life expectancy is 73, as compared with 57 years in 1913.

Although the culture of Armenia has a history that goes back many centuries, knowledge was previously inaccessible to the masses of the people. According to the 1897 population census, the percentage of literate inhabitants was only 9.2. In the 1914-1915 school year, 45 general-educational schools of all types, with 34,700 students, were functioning.

Socialist Armenia is a republic with high material and spiritual culture. At the present time it has 1520 general-educational schools in operation, with 607,400 students. Educational work with schoolchildren is also carried out in 56 Pioneer Palaces and Homes; there are 95 children's and adolescent sports schools, seven young naturalists' stations, 25 young technicians' stations, a children's railroad, and other nonschool institutions. A broad network of pre-school institutions has been created. In prerevolutionary Armenia there was only one secondary special educational institution, with 131 students. In the 1979-1980 school year the republic had 92 occupational-technical schools with 50,000 students; 65 secondary special educational institutions with 54,000 students; and 13 institutions of higher learning, with 58,000 students. At the beginning of 1980 the republic employed more than 157,000 specialists with higher and more than 126,000 with secondary special education.

The works of Armenian writers, poets, painters, composers, and other figures in the arts enjoy universal recognition not only in our republic, but also beyond the confines of our country. Motion pictures, the press, radio, and television are broadly developed. As of the beginning of 1980, 1333 massive libraries were in operation, with an overall collection of 19,580,000 books and magazines; 1215 club institutions; and 39 museums, including a picture gallery, a history museum, museum of history, geological museum, and a museum of nature.

In 1935 the Armenian Branch of the USSR Academy of Sciences was formed, and in 1943 the Academy of Sciences, Armenian SSR, was organized on its basis. At the present time the republic has approximately 130 scientific-research institutions and laboratories, which employ 17,701 scientific workers, including 701 doctors of sciences and 5303 candidates of sciences.

Major successes have been achieved in the field of astrophysics and celestial astronomy, the theoretical physics of elementary particles, mathematics and computer technology, theory of elasticity, theory of plasticity, radiobiology, and other branches of science. The projects carried out by one of the world's largest astrophysical observatories, the Byurakanskaya Observatory, have received general recognition. Research is under way in the field of function theory, differential and integral equations, solid body, liquid, and gas mechanics, polymers, electromagnetic theories, quantum electronics, radiophysics, spectroscopy, etc.

An important role in the development of the national economy and culture is played by the State Budget of Armenian SSR. During a 20-year period (from 1920 through 1940) 2282 million rubles were expended to finance the national economy, of which 908 million rubles were invested in industry and power engineering, 560 million rubles in agriculture, 116 million rubles in transportation and communication, 370 million rubles in communal construction and housing; and 240 million rubles for social and cultural construction.

The Great Patriotic War made substantial changes in the development of the economy and in the distribution of material and financial resources. Despite the financing of military expenditures, which was the major task of the USSR State Budget, and the expenditures for the shifting of industry to the eastern parts of the country and for the rendering of aid in the restoration of the devastated economy as territories were liberated from the occupation, the volume of the budget

continued to grow, and in 1946 was 879 million rubles, as compared with 479 million rubles in 1940.

During the past 15 years its volume has increased by a factor of almost 2.2 -- from 667 million rubles in 1965 to 1486.7 million rubles in 1979. The expenditures for the development of the national economy increased during that time by a factor of 2, and for social and cultural measures, by a factor of 2.5.

Guided by the party platform's principle to the effect that "during the entire period of extended communist construction, an important role continues to be played by the state budget in the distribution of the social product and the national income"¹, the republic's financial agencies constantly improve the style and methods of budget work. To a tremendous degree this has been aided by the changeover of industry and other branches of the national economy to the new system of planning and economic incentives for production. The budget has begun to exert a more active influence upon the financial and economic activities of all links of the economy -- from the enterprise to the ministry.

The 25th CPSU Congress set down a broad program of development of all the economic regions in the country and all the socialist republics. During the current five-year plan the branches of Armenia's national economy will be subjected to qualitative and structural changes. There will be a considerable increase in the capital-labor ratio and labor productivity on the basis of the complete mechanization and automation of enterprises, and scientific forecasting, planning, and administration of the national economy will continue to improve. In 1975-1980 the capital investments in the national economy will be 5110 million rubles, or 21.2 percent more than in the Ninth Five-Year Plan. During those years the republic's industrial production will increase by 137.7 percent. There will be a considerable expansion of the production of consumer goods; the average annual production of agricultural output will increase by 24 percent; housing with a total area of 6,139,000 square meters will be activated; the providing of communal and everyday services for the public will improve; and the level of public health and the workers' culture and welfare will rise.

The majestic program of the new five-year plan has found its expression in the budget for Armenian SSR. During the five-year period (from 1976 through 1980) it is planned to channel into the financing of the national economy 3,319,200 rubles, which will be 48.1 percent of the total expenditures; and 3,313,700 rubles for social and cultural measures. The first four years of the Tenth Five-Year Plan were completed by Armenia, as a whole, with positive indicators; the volume of industrial output rose by 143 percent and the volume of sales by 140.2 percent; noticeable successes were achieved in agriculture and other branches of the national economy. The income part of the budget was fulfilled by 103.7 percent; 223 million rubles were mobilized in excess of plan. Judged on the basis of the results of the All-Union Socialist Competition, Armenian SSR was awarded the challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU, and the Komsomol Central Committee each year of the five-year plan. The

¹ *Materialy XXII s"yezda KPSS* [Materials of the 22nd CPSU Congress], Moscow, Gospolitizdat, 1961, p 387.

competition in honor of the sixtieth anniversary of the establishment of Soviet authority in Armenia is continuing. The workers are firmly resolved to reach new goals in the Tenth Five-Year Plan.

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REGIONAL DEVELOPMENT

EFFICIENCY OF REGIONAL DEVELOPMENT ANALYZED

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[Article by Doctor of Economic Sciences Professor V. Kistanov: "Analysis of the Effectiveness of the Development of Industry of Economic Regions"]

[Text] The consistent implementation of the CPSU policy of intensification, the utmost utilization of the reserves of economic growth, the further improvement of planning and management require the thorough elaboration of questions of production efficiency with a breakdown not only by sectors, but also by territories. The decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," is aimed at this.

The determination of the indicators and the methods of evaluation of regional efficiency is one of the complicated economic problems.¹ Science and practice have elaborated various approaches here. Synthetic indicators of the complete characterization of efficiency by republics and regions on the basis of the comparison of the amount of the national product or the national income (net production) with current, capital or adjusted expenditures have become widespread. Along with this factor indicators of the regional efficiency of industry: labor productivity, the capital-labor ratio, the output-capital ratio, the output-materials ratio and so on, are used in planning and preplanning research for the overall evaluation of the operation of industry of the union republics and economic regions. Of course, they do not give an idea of the total efficiency, but nevertheless characterize the degree of utilization of living and embodied labor by republics and regions, making it possible in a certain way to judge the results of economic development. Being relatively simple, easy to understand and "customary" in practical calculations, these indicators are recommended as official procedures for territorial planning.²

The attempts to calculate and analyze the territorial indices of labor productivity by sectors of the national economy and industry have already been reflected in part in the literature. In the elaborations of the Council for the Study of Productive Forces attached to USSR Gosplan an attempt was made to present the factor indicators of efficiency--labor productivity, the output-resource ratio (the output-capital ratio and so forth), as well as the resource-labor ratio (the capital-labor ratio and so forth)--in the form of a system of interdependent territorial indices.³ The merit of this approach consists in the fact that the analysis embraces a unified set of consolidated (that is, for industry as a whole) territorial indices, in

which both the main (overall) indicators and their variants, which characterize the influence of the sectorial and the structural factors, are strictly interconnected.

In the special case the territorial (just as the dynamic) indicator of labor productivity ($I_{l.p}$) functions as the product of the indices of the capital-labor ratio ($I_{c,l}$) and the output-capital ratio ($I_{o,c}$), that is, $I_{l.p} = I_{c,l} \cdot I_{o,c}$. The analysis of the indicated dependence is of great urgency under the conditions of the decisive influence of technical progress and the intensification of production on the economy of regions.⁴ Here each of the indicated three factor indicators is calculated according to three indices--the overall, average sectorial and structural indices.

The consolidated /overall/ [in boldface] territorial index of the efficiency of industry (the index of "variable composition") is the ratio of the corresponding cumulative indicators of the region and the country. With respect to labor productivity, for example, it is determined by dividing the absolute value of the output of production by one employee in all the industry of the region by the same indicator for the country. The overall efficiency reflects inseparably the economy of the sectors (in the aggregate) and the sectorial structure of the industrial complex. Since the value of the overall index depends on two factors--the values of the sectorial indices and the ratio of the sectors themselves, it can be broken down into two corresponding subindices.

The consolidated /average sectorial/ [in boldface] territorial index of the efficiency of industry (the index of "constant composition") is obtained as a result of the weighting of the sectorial indices or is determined according to the number of workers (when determining the labor productivity and the capital-labor ratio) or according to the value of the fixed capital (when determining the output-capital ratio).⁵ The indicator excludes the influence of the structural differences of industry in the region and the country and reflects only the differences in the economy of the sectors themselves and in the quality of their operation. This regional index shows what the level of efficiency (as compared with the average union level) would be on the condition that in the country there is the same sectorial structure as in the region (that is, the actual difference of efficiency is connected only with the different sectorial indicators of the region and the country).

The consolidated /structural/ [in boldface] territorial index of the efficiency of industry, which is obtained by dividing the overall index by the average sectorial index, characterizes the influence of the differences in the sectorial structure of the industry of the region and the country. The index shows the potential level of efficiency (as compared with the average union level) when the sectorial indicators of efficiency in the region and the country coincide (that is, the actual difference of the cumulative indicators is connected only with the different proportions of the sectors in industry). The indicator is important for analyzing the economy of regions, since its rationality in many ways is determined by the perfection of the sectorial structure of the economy (and not only by the work quality of individual sectors).

According to the indicated scheme--the overall, average sectorial and structural indices--not only the factor, but also the synthetic indicators (the ratio of the results and costs of production according to the gross and net production, the profit, the adjusted expenditures, the production cost and so on) in principle can

be calculated. The indicators of labor productivity, the capital-labor ratio and the output-capital ratio are determined more simply by the proposed method than by others, since the initial information (the gross production, the number of personnel, the value of the fixed capital) is usually represented extensively in statistical, preplanning and planning materials. Such simple calculations make it easier to obtain an overall characterization of the regional impact of production.

Economic analysis precedes all planning projections. The three complementary indices of the relative efficiency in the three variants⁶ make it possible to establish certain trends of their change, to identify the possibilities of improving the industrial complex of the region and to verify the reliability of the preplanning and planning projections. By means of the indices it is easy to obtain an answer to the question: in which regions should primary attention be directed to the increase of the capital-labor ratio, in which should it be directed to the increase of the output-capital ratio, while in which should it be directed to both, in order to increase labor productivity. It becomes possible to ascertain where it is necessary first of all to improve the indicators of the sector, where it is necessary to improve the sectorial structure of industry, and where it is necessary to do both. The degree of reliability of the indices is determined by the quality of the initial data. If the latter (in the future) are the parameters of an optimization economic mathematical model (interregional, intersectorial), the indices can be regarded as the optimum indicators.

On the basis of statistical reporting and preplanning materials the consolidated territorial indices of factor efficiency in industry for 1975 and the estimated future with a breakdown by all large economic regions and union republics were calculated and analyzed in the Council for the Study of Productive Forces attached to USSR Gosplan. The consolidated weighted average indices for 1975 were calculated (using computers) from the indices for 327 sectors, subsectors and works of industry and were generalized for 10 combined sectors.⁷

The obtained regional indices of labor productivity, the capital-labor ratio and the output-capital ratio were analyzed not separately, not by themselves, but from the point of view of their interrelationship and influence on each other. The main directions of the analysis are the grouping of the regions according to the indicators of efficiency and the identification of the state and trends of the further change in the indicators of individual regions and republics. Here five groups of regions were distinguished according to the value of the indices (USSR = 1): the highest level (1.15 and more), above average (1.05-1.14), average (0.95-1.04), below average (0.85-0.94) and the lowest level (0.84 and less). As a result of the study certain regularities in the indicators of regional efficiency and reserves of their improvement were identified.

The intensification of the utilization of production capacities and the increase of their technical level in the industry of regions, as well as the increase of the proportion of sectors with the best of the noted indicators can be regarded as immediate factors which influence the regional levels of labor productivity. In this sense the generalizing indicator of efficiency--the output of industrial production per employee--apart from the fact that it is determined by its intrinsic features also functions as a derivative of the indices of the output-capital ratio and the capital-labor ratio. As a result the specific distribution of regions according to the noted indicator becomes more comprehensible.

As to the relative values themselves of the output-capital ratio and the capital-labor ratio, they in turn depend on a large number of causes and conditions of an objective and subjective nature--the sectorial composition of industry, the age of the fixed capital, the level of skills of the workers, the scale of capital investments, the proportion in them of new sectors and enterprises, the technical policy, the level of organizational economic activity and so on. The quantitative expression of these causes and conditions is complicated, while the expression of some of them is simply impossible. At the same time the differences in the manifestation of the indicated factors between regions of a different economic type (for example, old industrial and eastern regions, newly developed regions) are discerned more or less perceptibly.

The output-capital ratio is determined first of all by the technical level of the fixed production capital and by the organizational measures on the improvement of its use, particularly the increase of the machine shift coefficient. This indicator to a considerable extent characterizes the efficiency of the use of embodied labor. The growth of the capital-labor ratio and the increase of the technical level of production as an objective law of its development especially appear under the conditions of the scientific and technical revolution (the introduction of new types of equipment with a greater unit capacity, means of mechanization, automation and so on).

The composition and structure of industry play an important role among the causes responsible for the value of the indicators of efficiency. A higher proportion in a region of the sectors for which the individual indices of labor productivity are higher than the average--the food industry, metallurgy, electric power engineering, the fuel, chemical and light industries (a productive type of sectorial structure) increases the consolidated index of labor productivity as against the average union level. If industry is characterized by a more significant proportion of sectors with a greater supply of capital--electric power engineering, the fuel, metallurgical, chemical and construction materials industries (the capital-intensive type), this leads to an increase of the consolidated index of the capital-labor ratio as compared with the average for the country. Given a greater proportion of sectors with the more intensive use of fixed production capital--light and food industries, electric power engineering, machine building, the cotton ginning, sewing, meat, wine-making, instrument making and other industries (the capital-producing type), the consolidated index of the output-capital ratio exceeds the average union index. The structure of industry and its type should conform to the regional features and conditions of reproduction, which to a considerable extent is reflected in the value of the structural index of efficiency, since the technical and organizational level of production affects mainly the average sectorial index.

The question of eliminating the influence of extraneous factors on the gross production, the number of personnel and the value of the fixed production capital arises when estimating the regional production efficiency.

The territorial differentiation of wholesale prices of industry has little effect on the statistical indicator of the gross production,⁸ for average union wholesale prices are in effect in the processing sectors (except the food industry), while for the extractive sectors, including fishing (in which zone prices occur), the gross production is converted by the USSR Central Statistical Administration according to the average union prices (except the logging industry).

As special studies show, at times identical production capacities at related enterprises are attained by a different number of workers (the differences are observed especially in auxiliary sections), there are instances when workers are retained in excess of the staff of the enterprise and so on. However, judging from the published data, the number of excess workers who can actually be released (for the most diverse reasons) in the total number of industrial personnel engaged directly in production does not exceed 1-3 percent.

In connection with the higher wage rates of construction workers and the expenditures on the delivery of equipment the value of fixed capital in the east is higher than on the average for the country: in Western Siberia (according to the standards of the increase of the cost of construction and installation work) 7 percent higher, in Eastern Siberia--14 percent, in the Far East--36 percent. As estimates show, owing to this the overestimate of the indices of the capital-labor ratio and the underestimate of the indices of the output-capital ratio in the eastern regions of the RSFSR fluctuate over the range of 5-37 points. However, although the specific values of the indicators fluctuate appreciably, the position of the regions among the others remains nearly the same.

Thus, the indicators of the gross production of industry, the number of industrial personnel engaged directly in production and the value of the fixed production capital by sectors and regions which are calculated by statistics are quite suitable for calculating the indices of efficiency in question.

The evaluation of the influence of regional indicators on the all-union level of efficiency depends not only on the value of each regional index, but also on the scale of production in the region. With a high regional indicator but a relatively small volume of output (or capital) the indicated influence will be negligible, and vice versa. It is typical that only a few economic regions have the main influence on the union indicators (this is discussed specifically below).

It has been established that the best general indicators of the output-capital ratio (1.15-1.51) are primarily characteristic of old industrial regions with long established production capital and skilled workers and with a sectorial structure mainly of the capital-producing type (the Center, the Volga-Vyatka Region, the Baltic republics and others), while the worst (0.69-0.86) are characteristic of a number of regions of new economic development with capital-intensive sectors (Siberia, Kazakhstan and others). At the same time the appreciation of the fixed capital among the latter has little effect on the distribution of these regions according to the noted indicator.

However, the lower average sectorial indices (0.81-0.82) among some eastern regions (the Far East, Kazakhstan) and the higher indices (1.02-1.13) among some old industrial regions (the Center, the Volga-Vyatka Region) attest that the matter does not reduce only to the features of the sectorial structure: in the former case the capital-intensive capacities themselves are not being used intensively enough, while in the latter case the non-capital-intensive capacities have a greater efficiency than the same sectors for the country as a whole.

Attention should be directed to the unjustified low level of the use of equipment (0.79-0.89) in some highly industrialized regions--the Northwestern, Volga River, Donets-Near Dnepr and Urals Regions. Here the average sectorial output-capital

ratio (0.92-0.96) is inferior to the union indicator (with the exception of the last two regions), but the structural indices (0.80-0.92) are especially low, which attests to the lower proportion of sectors with the best utilization of equipment. Although in the Northwestern Region the large proportion of custom and small-series production in machine building influences the overall indicator (0.89), it is impossible to completely explain the situation only by this circumstance (the average sectorial index is 0.96). But then for a number of less developed regions--the Central Asian Region, Moldavia and others--the high total output-capital ratio (1.10-1.48) with a lower average sectorial ratio (0.88-0.94) results from a more perfect sectorial structure of the use of equipment (the capital-producing type).

The higher output-capital ratio in the Center, the Baltic republics and Belorussia and the lower ratio in the Northwest predetermined for the first three regions the relatively good overall indices of labor productivity and for the last region the relatively worse overall index of labor productivity.

The influence of the regional indicator on the union indicator is evident from the fact that the Central Region accounts for approximately three-fifths of the value of all the positive (increasing) deviations from the union level of the output-capital ratio (the overall index, which are weighted by the proportions of the regions in the USSR according to the gross production); the Volga River, Donets-Near Dnepr, Eastern Siberian and Urals regions provide the same value of negative (decreasing) deviations. The first region has a decisive influence on the growth of the indicator of the output-capital ratio for the country, while the last four regions have a decisive influence on its moderation.

As a whole appreciable differences remain in the intensity of the use of production capacities by regions: the gap between the maximum and minimum indices of the average sectorial output-capital ratio (that is, with the identity of the sectorial structures) is 1.8-fold.

Certain regularities come to light in the region-by-region breakdown of the overall index of the capital-labor ratio. The high level of supply of modern (more expensive) equipment of newly developed regions--Siberia, the Far East, Kazakhstan (1.13-1.61) and of industrial regions of the middle "generation"--the Urals, the Volga River region (1.10-1.27) is significant; the indices (1.04-1.15) of some old industrial regions--the Northwestern and Donets-Near Dnepr regions (a sectorial structure mainly of the capital-intensive type)--are also favorable. The features of the sectorial structure affect these indicators only in part, for the average sectorial capital-labor ratio is higher (1.0-1.37). The appreciation of capital in the eastern regions has practically no influence on their position among the others according to the capital-labor ratio.

However, a low level is typical not only of the less developed regions--the Southwestern Region, Moldavia and others (0.70-0.77), but also of some highly industrialized regions--the Center, the Volga-Vyatka Region, the Baltic republics and others (0.68-0.89). As is evident, the situation does not reduce to the non-capital-intensive nature of the sectorial structure. Lower (0.92-0.93) average sectorial indices of the capital-labor ratio (except the Baltic republics) and low structural indices (0.73-0.82) are also typical of the indicated group of developed regions. The latter attest to a large proportion of obsolete equipment in the sectors and to the inadequate proportion of sectors with a better supply of modern equipment.

The higher capital-labor ratio in Eastern Siberia, Kazakhstan and Transcaucasia plays a decisive role in their achievement of good overall indicators of labor productivity. On the other hand, the low supply of the Volga-Vyatka and Southwestern regions with capital is the main reason for the worsening of their indices of productivity.

The following data give an idea of the influence of regional indicators of the capital-labor ratio on the moderation of the union indicator. Three regions—the Central, Southwestern and Volga-Vyatka—account for approximately three-fourths of the amount of all the negative (decreasing) deviations of the overall regional indices from the average union level (with allowance made for the scale of fixed capital).

On the whole the gap between the maximum and minimum indicators of the regions with respect to the average sectorial capital-labor ratio (that is, with the identity of the sectorial structure) is 1.6-fold. The increase of the proportion of capital investments in the renovation of operating enterprises, which is taking place primarily in industrial regions of the older and middle "generations," should objectively cause the equalization of the level of their capital-labor ratio with the eastern regions (with allowance made for the differences of the type of sectorial structure).

The trends of the territorial change in the output-capital ratio and the capital-labor ratio are reflected in the end in the overall indices of labor productivity. It is quite legitimate that along with some established industrial regions (1.0-1.06)—the Central Region, the Baltic republics, the Volga River area, the Donets-Near Dnepr Region (with a sectorial structure of the production type or one close to it, and in a number of instances with a better output-capital ratio) some intensively developing regions of the east (1.02-1.11)—Eastern Siberia, Kazakhstan, the Far East (Central Asia—1.22—due to the significant proportion of sectors with a higher output: light and food industries and others), already have improved values of them (primarily due to a high capital-labor ratio).

However, the presence in the groups with worse indices (0.75-0.93) along with the less developed Southwestern Region of old industrial regions—the Northwest (mainly due to a low output-capital ratio) and the Volga-Vyatka Region (primarily owing to a low capital-labor ratio)—attracts attention.

The analysis of the average sectorial index of labor productivity in many ways confirms the cited conclusion about the nature of the grouping of regions, although it gives a slightly different distribution of them. The old industrial regions—the Northwestern, Central and Baltic regions—and the eastern regions—Western Siberia, Eastern Siberia, the Far East—are at the upper level (1.07-1.15); the Southwestern, Central Chernozem, Central Asian, Transcaucasian and Volga-Vyatka regions are at the lower level (0.91-0.94).

At present the gap between the maximum and minimum values of the average sectorial index of labor productivity by regions (that is, with the identity of the sectorial structure) is a relatively small amount—1.3-fold. The generalizing nature of the consolidated indicator of labor productivity governed its use for evaluating not only the effectiveness, but also the levels of development of the union republics and economic regions.

The values of the territorial indices and the specific nature of their combination in each economic region are largely determined by its type--old industrial, newly developed, transitional. To a considerable extent this division conforms to the classification of regions according to the features of the sectorial structure of industry (labor-intensive, capital-intensive and so on).

Thus, in the old industrial Volga-Vyatka Region the output-capital ratio is considerably higher than the average union ratio (the overall index is 1.14). The equipment is used well in the sectors of specialization--machine building, the chemical and timber industry, while in metallurgy, the production of construction materials and the food industry it is used even better (1.42-1.87).

However, the remaining indicators are inferior to the average union indicators, and this especially pertains to the capital-labor ratio (the structural index is 0.76, the overall index is 0.70). The technical supply of the leading works does not exceed 0.86-0.93 of the union level (the average sectorial index). The low capital-labor ratio is the main cause (among those being analyzed) of the lower overall index of labor productivity (0.79), according to which the region holds one of the last places in the country (it provides 24 percent of all the negative deviations of the overall regional indices from the union level). Of course, the average sectorial productivity approaches the union level, for the indicators of the sectors are better than the indicators of the sectorial structure. The relative surplus of manpower due to the lower technical level of production, which is calculated according to the overall index, amounts to a third of the total number of personnel. Here, of course, the low capital-intensive nature of the sectorial structure must be taken into account.

First of all attention must be directed to the need to improve the capital-labor ratio by pulling it up in specialized sectors--the chemical, timber, wood processing, pulp and paper, food sectors, a number of works of machine building (power, materials-handling, chemical and others), as well as by the possible acceleration of the development of the subsectors, which are relatively better equipped--the fuel industry, metallurgy, machine building, light and the food industries.

A region of another type, the developing Western Siberian Region, according to the overall index of labor productivity (0.98) is in the average group, and the indicator of the sectorial structure (0.92) is inferior to the index of the sectors (1.07). As in other regions of the eastern part of the RSFSR, the capital-labor ratio is higher (1.13), while the output-capital ratio is lower (0.86) and the appreciation of the capital does not influence this conclusion. However, the output-capital ratio of the sectors on the average is considerably better than in the country (1.36), while the correlation of the sectors according to this indicator is worse (0.63) which also shows in the lower resultant indicator.

The improved consolidated average sectorial indicators result from the higher indices of a number of sectors: for productivity--electric power engineering, the fuel industry; for the capital-labor ratio--ferrous metallurgy, the construction materials industry and light industry; for the output-capital ratio--electric power engineering, the fuel industry and nonferrous metallurgy. At the same time important sectors of specialization--ferrous metallurgy and machine building which are well equipped (1.02-1.18) owing to its inadequate utilization (0.80-0.92) are not yet noted for the best overall indicators of productivity (0.93-0.98).

The improvement of the sectorial structure of industry--the more rapid development and increase of the proportion of sectors and subsectors of specialization with better indicators of labor productivity and primarily the output-capital ratio: electric power engineering, the fuel industry, machine building and others, is a major reserve for the further increase of production efficiency. The more intensive utilization of equipment in ferrous metallurgy, the chemical industry (rubber, industrial rubber items), machine building (materials-handling, road construction, compressors and pumps, instrument making, computer hardware), light and the food industries (in a number of the indicated sectors the average sectorial output-capital ratio is less than 0.80), as well as the increase of the technical supply of nonferrous metallurgy, some sectors and subsectors of machine building (cable, battery, tool and others) and the food industry are assuming great importance.

What general conclusions can be drawn from the study of the territorial indices of factor efficiency?

The establishment of the specific causes of the lower level of utilization of equipment or its supply in certain republics and regions or others requires a more detailed analysis than the one cited above, with the study of the situation in certain sectors and even at individual enterprises. Thus, the inadequate output-capital ratio can be caused by a low machine shift coefficient, by the slow assimilation of production capacities, the small-series nature of production and others, while a lower capital-labor ratio can be caused by inadequate capital investments, by the lag of designing work, by the tightness of the balance of equipment, by the delay of capital construction and other reasons.

The general analysis made above, having identified the main causes of one regional level of labor productivity or another--the state of the output-capital ratio or the capital-labor ratio, of the indicators of individual sectors or of the entire sectorial structure of industry--can be of significant help in planning, makes it possible to ponder over deep-seated processes and focuses on more thorough, special studies (which it is expedient for republic and local planning or scientific organizations to perform).

In this case the general analysis shows the favorable situation with factor efficiency in some republics and regions and the inadequately favorable situation in others, as well as the existence of certain, often very significant reserves for the increase of labor productivity, which are connected in some instances primarily with the improvement of the use of production capacities and in others with the increase of the technical level of production (here over a short period the picture practically does not change).

By improving the economy of the sectors and the sectorial structure first of all it is necessary to improve the indicators of the output-capital ratio both in some eastern regions, especially the Far Eastern and Kazakhstan regions, and in a number of old industrial and established regions--the Northwestern, Volga River, Donets-Near Dnepr and others, and to improve the indicators of the capital-labor ratio not only in inadequately developed regions, for example, the Southwestern Region, but also in some highly industrialized regions--the Central, Volga-Vyatka, Belorussian and others. The improvement of the use of equipment (especially without the enlistment of additional manpower resources) and the increase of the technical supply of

production (first of all during the renovation and expansion of operating enterprises in the central and western regions) will make it possible to increase the rate of output of products with less expenditures. This should be taken into account during the further adjustment of the preplanning materials (the general plan of the distribution of productive forces) and in the practice of national economic planning, including the preparation of the main directions for the long-range future with the use in addition of more detailed economic calculations by sectors and works.

FOOTNOTES

1. See V. F. Pavlenko, "Territorial'noye planirovaniye v SSSR" [Territorial Planning in the USSR], Moscow, "Ekonomika", 1975, p 142.
2. See "Metodicheskiye ukazaniya k razrabotke gosudarstvennykh planov razvitiya narodnogo khozyaystva SSSR" [Procedural Instructions on the Drafting of State Plans of USSR National Economic Development], USSR Gosplan, Moscow, "Ekonomika", 1974, pp 35-36, 564.
3. The method is recommended by the draft of "Procedural Recommendations and Indicators for the Determination of the Specialization and the Comprehensive Development of the Economy of the Union Republics and Economic Regions" (1975), which were approved by the scientific council of the Council for the Study of Productive Forces and were prepared with the participation of the author; the indicator of the capital-labor ratio and those similar to it are regarded as a condition of efficiency.
4. The study of a similar influence of the provision (supply) of material resources and their use (efficiency) on the regional levels of labor productivity ($I_{l.p} = I_{m.l} \cdot I_{m.o}$), as well as the examination of the entire system of dependences of these levels on the indicators of various production resources (fixed capital, raw materials and fuel and so on) are of no less scientific and practical interest.
5. The index of constant composition with reference to labor productivity is also called the index of S. G. Strumilin, who back in the 1920's gave its substantiation (see S. G. Strumilin, "Izbrannyye proizvedeniya" [Selected Works], Vol 3, Moscow, 1964, pp 435, 497-498).
6. It is convenient to study them with respect to each region by means of a three-by-three working table, which reveals graphically the interdependence of the indicators via a system of equations of the products by lines (the main indices) and columns (the subindices).
7. Staff members V. K. Savel'yeva, Ye. T. Shtangey and D. G. Petukhov of the Council for the Study of Productive Forces attached to USSR Gosplan took an active part in the work under the direction of the author.
8. With the present planning procedure the gross or commodity production is used as an estimated (and in some sectors also a planning) indicator.

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